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ON A CLEAR DAY, YOU CAN SEE ICS: THE DYING ART OF INCIDENT COMMAND AND THE NORMAL ACCIDENT OF NIMS--A POLICY ANALYSIS

Teeter, Andrew C.

Monterey California. Naval Postgraduate School

NAVAL POSTGRADUATE SCHOOL

MONTEREY, CALIFORNIA

THESIS

ON A CLEAR DAY, YOU CAN SEE ICS: THE DYING ART OF INCIDENT COMMAND AND THE NORMAL ACCIDENT OF NIMS—A POLICY ANALYSIS

by

Andrew C. Teeter

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Thesis Co-Advisors: David Brannan
Pat Miller

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One basic expectation that citizens have of government is to restore order in the face of devastation. With each catastrophic incident, politicians and administrators step under the public microscope, as they attempt to bring order out of chaos. Failure to perform such a basic governmental function subjects officials and agencies to immense scrutiny with personal and organizational repercussions. In the quest for the answers to "What can be done better next time?" and "How do we prevent this from happening again?" elected officials and bureaucrats seek various policies. A recent example of this is the National Incident Management System (NIMS). NIMS is a fusion of Incident Command Systems (ICS) and broad governmental policy aimed at providing a systematic response to incidents. The fact that NIMS became policy was quite possibly a predictable event in an incremental series of events that began in the early 1970s. This thesis reveals how these predictable and incremental efforts have pushed our national frameworks into an increasing state of complexity with the potential of catastrophic failure. Further, this thesis recommends ways that will harvest success in the face of a catastrophic or disastrous incident without increasing complexity.

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ON A CLEAR DAY, YOU CAN SEE ICS: THE DYING ART OF INCIDENT COMMAND AND THE NORMAL ACCIDENT OF NIMS—A POLICY ANALYSIS

Andrew C. Teeter
District Chief, Tulsa Fire Department
B.S., Oklahoma State University, Stillwater, 1994

Submitted in partial fulfillment of the
requirements for the degree of

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Author: Andrew C. Teeter

Approved by: Dr. David Brannan
Thesis Co-Advisor

Mr. Pat Miller
Thesis Co-Advisor

Harold A. Trinkunas
Chair, Department of National Security Affairs

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ABSTRACT

One basic expectation that citizens have of government is to restore order in the face of devastation. With each catastrophic incident, politicians and administrators step under the public microscope, as they attempt to bring order out of chaos. Failure to perform such a basic governmental function subjects officials and agencies to immense scrutiny with personal and organizational repercussions. In the quest for the answers to "What can be done better next time?" and "How do we prevent this from happening again?" elected officials and bureaucrats seek various policies. A recent example of this is the National Incident Management System (NIMS). NIMS is a fusion of Incident Command Systems (ICS) and broad governmental policy aimed at providing a systematic response to incidents. The fact that NIMS became policy was quite possibly a predictable event in an incremental series of events that began in the early 1970s. This thesis reveals how these predictable and incremental efforts have pushed our national frameworks into an increasing state of complexity with the potential of catastrophic failure. Further, this thesis recommends ways that will harvest success in the face of a catastrophic or disastrous incident without increasing complexity.

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LIST OF ACRONYMS AND ABBREVIATIONS

CP	Command Post
EOC	Emergency Operations Center
FRP	Federal Response Plan
IAP	Incident Action Plan
IC	Incident Commander
ICS	Incident Command System
IMT	Incident Management Team
MACC	Multi-Agency Coordination System
MACS	Multi-Agency Coordination System
NIMS	National Incident Management System
NRF	National Response Framework
NRP	National Response Plan
SOC	Self-Organized Criticality
SOS	Self Organizing System
UC	Unified Command

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EXECUTIVE SUMMARY

In recent history, the United States of America has experienced a number of disasters and catastrophic incidents. In the wake of each of these events, government officials and citizens examine the response in an effort to determine "What can be done better next time?" and "How do we prevent this from happening again?" One basic expectation that citizens have of government is to provide public safety services and restore order in the face of devastation (Arceneaux & Stein, 2006, p. 44; NRF, 2008, p. 15). With each catastrophic incident, federal, state, and local politicians and administrators step under the public microscope, as they attempt to bring order out of chaos. Failure to perform such a basic governmental function in a satisfactory manner subjects officials and agencies to immense scrutiny with personal and organizational repercussions (Arceneaux & Stein, 2006, p. 44). In the quest for the answer to these questions, both elected officials and bureaucrats seek various policies.

A recent example of this is the National Incident Management System (NIMS). NIMS is a fusion of the Incident Command System (ICS) and broad governmental policy aimed at providing a systematic response to incidents. NIMS is an integral part of the National Response Framework (NRF), which specifies federal, state, local, and tribal responsibilities for all aspects of catastrophic incidents. NIMS and the NRF are the United States' policy answers to the question of "What can be done better next time?" and "How do we prevent this from happening again?"

The fact that NIMS became policy was quite possibly a predictable event in an incremental series of events that began in the early 1970s. This thesis reveals how these predictable and incremental efforts have pushed our national frameworks into an increasing state of complexity, a state that approaches the potential for a catastrophic failure with each quest for efficiency. Further, this thesis recommends ways that will harvest success in the face of a catastrophic or disastrous incident without increasing complexity. Rather, each recommendation is aimed at reducing complexity, as well as maintaining, and hopefully increasing, the acceptability of ICS and NIMS, to the end user—local responders.

ICS refers to itself as a “top down” system of management where objectives are orchestrated by a traditional, scalar command structure (NIMS, 2008). This thesis will show that incident success is more likely when command personnel acknowledge the “bottom-up,” or self-organizing system that naturally occurs during the initial stages. Once commanders acknowledge this portion of the response, they can take it into account as part of their planning for the sustained response. It is the IC/UC’s job to support these efforts while developing an action plan for a sustained response. Further, the thesis will show how this bottom-up response is the natural state for first responders, and that it fits current ICS conventions.

This thesis equates the combined concepts of individuality and locality to flexibility and adaptability. It examines the need for these concepts as a tenant of ICS and NIMS. Earlier ICS manuals emphasized the need for flexibility in implementation; however, more recent NIMS documents do not share this emphasis (ICS, 1988); (NIMS, 2008). The 2008 version of the NRF states that “Incidents start local and end local.” The NRF emphasizes flexibility in many areas of the text, suggesting more of a framework for incident management than a procedure. This research suggests that there is a disconnect in the intent of incident management as a whole, and the current ethos and teachings surrounding ICS and NIMS.

This document also examines the concept of inclusiveness when establishing a UC. One of the weaknesses of ICS in years past was that it was construed as a fire service system (Cole 2000, p. 209–210) (Hannestad 2005, p. 23). With the implementation of NIMS and All-Hazard ICS, the pendulum has swung far to the side of inclusiveness in UC. This is significant because it directly affects the implementation of a UC or an EOC, and hence, affects the success of ICS. Simply put, our light, simple, and agile commands are becoming committees and bureaucracies. As put by Drucker:

> One hears a great deal today about "the end of hierarchy." This is blatant nonsense….In a situation of common peril--And every institution is likely to encounter it sooner or later--survival of all depends on clear command. If the ship goes down, the captain does not call a meeting, the captain gives an order. And if the ship is to be saved, everyone must obey the order, must know exactly where to go and what to do…. "Hierarchy," and the unquestioning acceptance of it by everyone in the organization, is the only hope in a crisis. (Drucker, 1999, p. 11)

This research explores where the management failures lie between what obviously works and what does not. The questions go beyond the media presented perspective and focus on policy level realities that are missed under the often politically charged and sensationally focused bright lights of 24-hour news reporting. The importance of the research is measured in human life. If lives can be saved through identifying a management difference, then changes can be made to improve response. Finding that important seam is the ultimate goal of both this research and response leaders across the country.

The research works at the strategic policy level to identify how systemic rather than tactical alterations can be made across the system in an effort to improve overall management. In particular, it considers the response phase of disasters and catastrophic incidents and asks, what can be done to help responders use the existing framework? What positive change can be made in the national ethos with regard to disaster and catastrophic incident management? And finally, what can be done to improve the acceptance and utility of known and proven management tools?

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DEDICATION

Dedicated to Wayne Lehew, Chickasha, OK. An instructor and officer who has more sense in his back pocket than most of us stumble upon in a lifetime. He is among the people to whom I owe my career.

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PREFACE

This is a meager attempt by a practitioner to put some of our recent advancements in incident management into perspective. I am by no means a salty dog when it comes to incident management, and I am not the best firefighter who ever laid his hands on a hose (at times, it seems that the show dogs make all the good incidents while I sit on the porch). I watch in awe every shift as the youth in my organization perform heroic acts and provide service above and beyond the call in a manner that exudes professionalism and excellence. They have picked up and are carrying the torch for all of us. They perform steadily in the complex environment that we have created with our incremental contributions.

When one of my Cohorts found out my thesis topic, he looked at me, and in a defeatist tone, said, “So your taking on ICS.” I do not remember my exact answer at that early point, but it was pretty wishy-washy. My clear answer now would be “No, I am not taking on ICS. I am taking on a mentality.” This mentality is the mentality that over-simplifies ICS by putting it in a pretty package. It is a mentality that says a person can be an “All-Hazard” incident manager in a complex disaster or catastrophic incident environment by checking the boxes. It is a mentality that says attending classes, getting task books approved, and following the instructions in the Field Operations Guide gives one the credentials to be part of an Incident Management Team. It is the mentality that would exclude the everyday practitioner, and true expert, from a command position because he/she has not gotten all of his or her boxes checked. That day is coming.

In all, I feel we are losing our place as discipline-specific experts to mediocre generalists who know how to fill out ICS forms and follow checklists. Further, it is a developing mentality that seemingly forgets that we, as incident managers are working for two groups—citizens, and the boots on the ground. It is our job to save lives and property. It is also our job, as incident managers, to support and provide for the safety of responders. It is our job to help them be successful, not to “command” them. Subordinate to this, we are bound to please our superiors, our politicians and bureaucrats, and our peers—when we can (Lord knows I have got the hackles up on a few folks in those three

groups from time to time. I think there may be a county I'm not supposed to go back to somewhere…). It is my opinion that we must remember who we are serving.

As we transition to the nuevo "All-Hazard" mentality, we are losing the real art of incident management—the parts of ICS that we really should be passing on. Experienced ICS users will be familiar with these areas. Simply put, if the world is falling down around your ears and your first instinct is to whip out the ICS forms and spout ICS and NIMS rules—we have got a problem.

In this thesis, I address three issues that I see as key to advancing our ability as a nation to respond to the big (and little) ones. I do not propose that these three policy options are all-inclusive, as there are many more areas that could be addressed. Throughout, I maintain that the management failures we see over and over again are not the fault of NIMS, ICS, NRF, NRP, FRP, or any other system revision. It is not radio interoperability. It is us—we are the problem! We, as a nation, have tendered the right solution to the wrong problem. In doing so, we are getting farther away from some things that work right. The first area is our ethos in the initial stages of an incident or disaster. Second, is the recognition of the need for flexibility in implementation of ICS and NIMS. Third, I suggest that we have developed an atmosphere of over-inclusiveness in recent times when it comes to UC.

Some ideas may come across in a more critical or negative light than intended. I truly hope they do not. When one takes a critical look at a topic—someone else is going to get their feathers ruffled. When I first started working on this thesis, I was, at times, tagged as a NIMS and ICS opponent (in reality, it wouldn't matter if I was…Andy who?). If folks would sit next to me in my real job, they would see that ICS and NIMS are our way of doing business. I am a huge fan of ICS and NIMS. In my twenty-plus year career, I have known nothing else but ICS when it comes to managing incidents. (…and may I assert, I would prefer not to be "in-charge" of much. I have found that being "in-charge" is the equivalent of putting a target on one's back and sitting down on a hay bale at the shooting range.)

Thank you for taking the time to read my thesis that was submitted in the final hours of the extension that NPS was so gracious to allow.

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I. INTRODUCTION

A. BACKGROUND

> -*The task for those who care about emergency response is to understand what makes ICS succeed and under what circumstances.* –Donald Moynihan
>
> -*If every incident had a fence around it, a pre-incident briefing, and a starting gun – this would be easy!* –Anonymous

At 9:02 a.m. on Wednesday, April 19, 1995, a small group of domestic terrorists detonated a Ryder truck filled with the commonly used explosive, ammonium nitrate and fuel oil, on NW 5th Street in front of the Alfred P. Murrah federal building in Oklahoma City, Oklahoma (OKC, 1996, p. 9). The resultant blast sheared the front face off of the nine-story building and substantially cut into the center of the building (OKC, 1996, p. 2, 9). Oklahoma City responded in an effort that has been heralded in the years since (Keating, 2005). Approximately one year prior, Fire Chief Gary Marrs and many key personnel from the city attended a course in incident management at the National Fire Academy in Emmitsburg, Maryland (OKC, 1996, p. 1). They understood the key positions and concepts needed to mitigate the incident (OKC, 1996, p. 1). Assistant Chief Jon Hansen became the face of Oklahoma City's valiant response (OKC, 1996, p. 29–30). From the start, Oklahoma City controlled the incident and the image of the incident (OKC, 1996, p. 25–34).

At 8:46 a.m. on September 11, 2001, American Airlines Flight 11, guided by five al-Qaeda hijackers, struck the North Tower of the World Trade Center (National Commission on Terrorist Attacks, 2004, p. 1–14). In the minutes and hours that followed, three more terrorist incidents ensued: United Airlines Flight 175 struck the South Tower of the World Trade Center at 9:03 a.m., American Airlines Flight 77 struck the Pentagon at 9:37 a.m., and United Airlines Flight 93 crashed into a field near Shanksville, Pennsylvania, at 10:03 a.m. (National Commission on Terrorist Attacks, 2004, p. 1–14). The events of this day changed the focus of a nation. In the wake of the 9/11 attacks, President George W. Bush formed the Office of Homeland Security and announced the

Global War on Terror (OHS, 2002). The National Commission on Terrorist Attacks upon the United States (9/11 Commission) was formed to investigate and report on these incidents (National Commission on Terrorist Attacks, 2004, p. xv–xvii).

The Commission's report identified successes and failures on the part of many governmental organizations. The city of New York was lauded for the heroic and life-saving efforts by its fire department, police department, and the Port Authority. Mayor Rudolph Giuliani rose to the occasion and became known as "America's Mayor" for his leadership during the events (*Economist*, 2005). The city of New York, which had received such praises, was also called out for their lack of coordination between agencies and their lack of interoperability (National Commission on Terrorist Attacks, 2004, p. 317–323). These were cited in the failure to make evacuation announcements that might have saved the lives of many of the 343 New York City Firefighters, 37 Port Authority Police Officers, and 23 New York City Police Officers that perished that day (National Commission on Terrorist Attacks, 2004, p. 317–323). The Arlington, Virginia, and the Washington, D.C. fire departments were commended for their use of the ICS (National Commission on Terrorist Attacks, 2004, p. 314). Several government organizations came to light for their failures. Two of the most notable, the FBI and the CIA, underwent significant changes (Bi-Partisan Policy Center, 2011, p. 12).

On August 29, 2005, Hurricane Katrina made landfall in New Orleans[1] (White House, 2006, p. 33). Days prior, officials were warned of Katrina's devastating potential (White House, 2006, p. 23–31). In the months and years preceding, both local and federal officials, knew of the Achilles' heel in New Orleans, the levees (White House, 2006, p. 24–25). During the days of August 27 through 29, officials embarked on a massive attempt to evacuate New Orleans (White House, 2006, p. 25). They issued a voluntary evacuation order, and they implemented a plan that made all lanes of the major highways[2] leading to the city go only one direction—away from the city (White House,

[1] Hurricane Katrina made landfall on over ninety miles of coastline in Louisiana and Mississippi. This discussion focuses on New Orleans.

[2] Referred to as "contra-flow" plans.

2006, p. 25) (Comfort, 2007, p. 190). Roughly 92 percent of New Orleans evacuated (White House, 2006, p. 29). By many standards, this would be an incredible feat. The 8 percent of New Orleans's population left in the city were substantially the poorest and in the most vulnerable areas (Comfort, 2007, p. 191) (White House, 2006, p. 29; Harrald, 2006, p. 258). The consequences were devastating and well known. In the aftermath, Michal D. Brown's[3] actions and credentials immediately came under scrutiny. Secretary Chertoff relieved him of his position as Principal Federal Official over the Hurricane Katrina Response (White House, 2006, p. 47) (Quarantelli, 2005). Brown resigned his position with the Federal Emergency Management Agency (FEMA) on September 12, 2005 (FEMA, 2005).

Leadership (or lack thereof?) on the part of officials in Louisiana and New Orleans became national news. During the days after landfall, emergency managers had to be taught how to manage this type of event (United States Senate, 2006, p. 562). Basic local, state, and federal preparations, such as communications, transportation, food, and shelter became the target of criticism (United States House, 2006). For all intents and purposes, the media controlled the image of the response to Hurricane Katrina in New Orleans (United States House, 2006; Harrald, 2006, p. 258); (Quarantelli, 2005). Mayor Ray Nagin actually resorted to using the media as a venue to plead for federal assistance (CNN, 2005). The federal, state, and local governments were uncoordinated (United States House, 2006). Reports of chaos at the Superdome and Convention Center, lawlessness by police officers, and people stranded on bridges and rooftops in the sweltering heat were pervasive in the media (United States House, 2006). These images added to the vision of leadership unprepared and unable to handle the disaster. Despite all of the heroic and competent efforts across Louisiana and Mississippi, the situation in New Orleans overshadowed the response.

The incidents described above consisted of one natural disaster and two terrorist incidents (one by domestic actors and one by foreign nationals). All were similar in that they were nationally significant incidents. All were thought to be unprecedented in recent

[3] Director of the Federal Emergency Management Agency at the time of Hurricane Katrina's landfall.

history. Local, state, and federal governments had the opportunity to prepare for these disasters and the opportunity to manage them. In the case of the Oklahoma City bombing, agencies enjoyed a positive image. In the case of the 9/11 attack on the World Trade Center, individuals were heralded for their leadership and heroism while organizations, such as the Federal Bureau of Investigation and the Central Intelligence Agency, were subject to immense scrutiny. The events of 9/11 were summed up by the National Commission on Terrorist Attacks upon the United States as "a failure of imagination" (National Commission on Terrorist Attacks, 2004, p. 339). The response to Hurricane Katrina had devastating effects on personal careers and the image of organizations. The response effort was summed up in a similarly titled United States House of Representative's investigation as "a failure of initiative (United States House, 2006)."

In recent history, the United States of America has experienced a number of disasters and catastrophic incidents. In the wake of each of these events, government officials and citizens examine the response in an effort to determine "What can be done better next time?" and "How do we prevent this from happening again?" One basic expectation that citizens have of government is to provide public safety services and restore order in the face of devastation (Arceneaux & Stein, 2006, p. 44; (NRF, 2008, p. 15). With each catastrophic incident, federal, state, and local politicians and administrators step under the public microscope as they attempt to bring order out of chaos. Failure to perform such a basic governmental function in a satisfactory manner subjects officials and agencies to immense scrutiny with personal and organizational repercussions (Arceneaux & Stein, 2006, p. 44). In the quest for the answer to these questions, both elected officials and bureaucrats seek various policies. A recent example of this is the National Incident Management System (NIMS). NIMS is a fusion of the Incident Command System (ICS) and broad governmental policy aimed at providing a systematic response to incidents. NIMS is an integral part of the National Response Framework (NRF), which specifies federal, state, local, and tribal responsibilities for all aspects of catastrophic incidents. NIMS and the National Response Framework (NRF) are the United States' policy answers to the question of "What can be done better next time?" and "How do we prevent this from happening again?"

The fact that NIMS became policy was quite possibly a predictable event in an incremental series of events that began in the early 1970s. The answer to "why?" this occurred may lie in complexity theory. Further, complexity theory may also explain why the United States is setting itself up for a catastrophic failure with NIMS. In a recent conversation (2011) with a highly respected homeland security professional, the author and he were discussing NIMS as a policy. As the conversation ensued, this gentleman looked over at the author and stated "there has never been a successful implementation of NIMS." To ponder that eight years after the effective date of a policy that it basically has not worked is striking to the author.

This thesis reveals how these predictable and incremental efforts have pushed our national frameworks into an increasing state of complexity, a state that approaches the potential for a catastrophic failure with each quest for efficiency. Further, this thesis recommends ways that will harvest success in the face of a catastrophic or disastrous incident without increasing complexity. Rather, each recommendation is aimed at reducing complexity, as well as maintaining, and hopefully increasing, the acceptability of ICS and NIMS, to the end user—local responders.

ICS refers to itself as a "top down" system of management where objectives are orchestrated by a traditional, scalar command structure (NIMS, 2008). This thesis will show that incident success is more likely when command personnel acknowledge the "bottom-up," or self-organizing system that naturally occurs during the initial stages. Once commanders acknowledge this portion of the response, they can take it into account as part of their planning for the sustained response. It is the IC/UCs' job to support these efforts while developing an action plan for a sustained response. Further, the thesis will show how this bottom up response is the natural state for first responders and that it fits current ICS conventions. Consideration of the first recommendation lends itself to the second, flexibility.

The first and second recommendations are mutually exclusive; however, they are closely related. When one considers that a network of responders has the ability to self-organize into an effective initial effort, one must also consider that their effort considers the individuality and locality of the situation. Such a network is adaptable and flexible in

a way that a “top-down” organization cannot be (Harrald, 2006, p. 270). This thesis equates the combined concepts of individuality and locality to flexibility and adaptability. It examines the need for these concepts as a tenant of ICS and NIMS. Earlier ICS manuals emphasized the need for flexibility in implementation; however, more recent NIMS documents do not share this emphasis (ICS, 1988; NIMS, 2008). The 2008 version of the NRF states that “Incidents start local and end local.” The NRF emphasizes flexibility in many areas of the text, suggesting more of a framework for incident management than a procedure. This thesis suggests there is a disconnect in the intent of incident management as a whole, and the current ethos and teachings surrounding ICS and NIMS.

This document also examines the concept of inclusiveness when establishing a UC. One of the weaknesses of ICS in years past was that it was construed as a fire service system (Cole 2000, pp. 209–210); (Hannestad 2005, p. 23). In many cases, it became an issue when the main players, fire, law enforcement, and EMS were not working together. Pertinent to this thesis is the concept that the pendulum has swung far to the side of inclusiveness in UC. This is significant because it directly affects the implementation of a UC or an EOC, and hence, affects the success of ICS. Simply put, our light, simple, and agile commands are becoming committees and bureaucracies. As put by Drucker:

> One hears a great deal today about “the end of hierarchy.” This is blatant nonsense….In a situation of common peril--And every institution is likely to encounter it sooner or later--survival of all depends on clear command. If the ship goes down, the captain does not call a meeting, the captain gives an order. And if the ship is to be saved, everyone must obey the order, must know exactly where to go and what to do…. "Hierarchy," and the unquestioning acceptance of it by everyone in the organization, is the only hope in a crisis. (Drucker, 1999, p. 11)

In choosing the title for this thesis, the author sorted through many concepts that are important to the conversation at hand. One key concept that kept rising to the top is that in this massive NIMS effort our nation’s response frameworks have moved to an increasingly complex state that is nearing the point of catastrophic failure. NIMS is one example of an outgrowth of complexity—a normal accident in an increasingly complex

system[4]. Subsequently, we are missing the overarching point of all of this—the ability of a local group of responders to quickly assess an otherwise out of control situation, identify the resources needed, and develop an organization or organizations that fit the needs of their situation. They need to be able to do this in some sort of standard manner, so that when others come to help, they can quickly fit into the system. This is the concept that serves the real stakeholders—the citizens of the United States of America. When the sky falls in their back yard, they do not care about the reimbursement and use of proper forms that is the job of some bureaucrat to figure out later. They do not care about whether the police or fire department is in charge, or any of the other antics and positioning that have gone on for years. They want and need an organization that puts an ambulance, fire truck, police car, or other emergency responder in front of their house—fast. They want stabilization, security, safe refuge, and food. They care about who is going to help those poor people on the TV screen.

J. Patrick Wright published a book in 1979 written by a gentleman named John Z. DeLorean. DeLorean, a no less than controversial figure, detailed his experiences as a rising star in the General Motors Corporation. His book brought forth many stories and examples of how the automotive giant fell from greatness. Ultimately, Mr. DeLorean felt that the top management at GM had lost sight of its customers and became clouded in an aura of organizational bliss. Mr. DeLorean's work was entitled, *On a Clear Day You can See General Motors*. Arguably, many of the portions of this book parallel the current state of ICS and NIMS.

B. PROBLEM STATEMENT

In recent history, disasters and catastrophic incidents have yielded mixed results when it comes to judging them a management success or failure. In the wake of each of these events, government officials and citizens examine the response in an effort to determine "What can be done better next time?" and "How do we prevent this from happening again?" After the tragic events of September, 11, 2001, one of the answers to these questions was a national incident management system. Homeland Security

[4] The concept of "normal accident" by Charles Perrow is expounded upon in Literature Review.

Presidential Direcitve-5, issued in 2003, created NIMS. NIMS has five components. One of the components, the Command and Management Component, makes ICS a mandatory system for responding to incidents in the United States.

Responders, administrators, and academics alike, question the efficacy of the ICS to be the one-size-fits-all system for incident management. Since ICS has become mandatory, many agencies have "checked the boxes" and done what is required to be "NIMS compliant" (Jensen, 2009, pp. 22–23). However, many have only done what is required in an effort to be eligible for grant funding. In reality, they have not incorporated NIMS and ICS as part of their everyday operations (Jensen, 2009, p. 22). As there has been push back and resistance, there has been increasing emphasis and revision to the system on the part of the federal and state governments. Hence, as the system has become more complex, the chances of success from using the systems are decreasing.

This thesis examines ICS as a policy and examines three areas that can potentially improve the chances that local responders will use ICS. The intent is to do this without adding regulations and increasing system complexity. The goal is to prevent the consequences of management failures that can occur from disasters and catastrophic incidents.

C. RESEARCH QUESTIONS

In light of the successes and failures in incident management discussed above, this research explores where the management failures lie between what obviously works and what does not. The questions go beyond the media presented perspective and focus on policy level realities that are missed under the often politically charged and sensationally focused bright lights of 24-hour news reporting. The importance of the research is measured in human life. If lives can be saved through identifying a management difference, then changes can be made to improve response. Finding that important seam is the ultimate goal of both this research and response leaders across the country.

The research works at the strategic policy level to identify how systemic rather than tactical alterations can be made across the system in an effort to improve overall management. In particular, it considers the response phase of disasters and catastrophic incidents and asks, what can be done to help responders use the existing framework? What positive change can be made in the national ethos with regard to disaster and catastrophic incident management? And finally, what can be done to improve the acceptance and utility of known and proven management tools?

D. HYPOTHESIS

This research posits a hypothesis that there is a correlation between management failures in disasters and unwillingness or an inability on the part of managers to take advantage of strategic frameworks for success, which are often contained in the ICS (ICS). Underlying this hypothesis are several contributing factors.[5] The first is a failure on the part of administrators, educators, and responders to recognize the differences in the management approach needed in the initial stages of a disaster as opposed to the traditional top-down model of managing the sustained response to long-term incidents. Second, it contends that the adoption of ICS as part of NIMS has exacerbated this unwillingness through a real or perceived loss of local autonomy and flexibility. Third, the thesis suggests that in the transition to All-Hazard ICS, there has developed an atmosphere of over-inclusiveness regarding members of the UC.

E. SIGNIFICANCE OF RESEARCH

Incidents at the national level are closely scrutinized, and mistakes and errors will be exposed. Where those management failures are linked to losses of life, demands will be made against both the failed managers and agencies, by other levels of government, citizen groups or even the courts. While some management failures are going to happen, those that can be changed through better policy should be critically considered and changed. Management is not a new subject and managing catastrophic incidents is a field of study that can be known through analysis.

[5] The author acknowledges that this is not (and cannot be) an all inclusive list.

Much debate surrounds the efficacy of ICS and NIMS to handle a comprehensive range of incidents. This thesis will not only contribute concrete solutions to improve the use of ICS, but it will also add to the academic literature on the topic. This research is an effort to apply appropriate analysis to three aspects of a current policy, NIMS, in an attempt to reduce complexity and increase understanding. It also uses a policy analysis to develop strategic recommendations aimed at increasing 1) the utility of ICS to the homeland security enterprise, and 2) its palatability to local jurisdictions. The goal is to prevent the consequences of management failures that can occur from disasters and catastrophic incidents.

F. METHODOLOGY: POLICY ANALYSIS

Homeland Security Presidential Directive-5 made this charge to the Secretary of Homeland Security:

> Beginning in Fiscal Year 2005, Federal departments and agencies shall make adoption of the NIMS a requirement, to the extent permitted by law, for providing Federal preparedness assistance through grants, contracts, or other activities. The Secretary shall develop standards and guidelines for determining whether a State or local entity has adopted the NIMS.

With that, ICS became part of United States policy. The thesis uses a policy analysis to develop strategic recommendations aimed at increasing 1) the utility of ICS to the homeland security enterprise, and 2) its palatability to local jurisdictions. It asks the question, what can be done to help responders use the existing framework? What positive change can be made in the national ethos with regard to disaster and catastrophic incident management? And finally, what can be done to improve the acceptance and utility of known and proven management tools?

Policy analysis is a research methodology designed "to evaluate either existing or potential policies in terms of their ability (or potential ability) to achieve the stated policy goals (Morag & Wollman, 2008)." The goal is to improve an existing policy. As opposed to academic research, which often has the goal of advancing knowledge, policy analysis focuses on solving "concrete" policy issues. The policy analysis methodology allows the researcher to consider a range of variables and determine the strengths and weaknesses of

the existing policy. Then, recommendations are considered through a lens that considers the political, organizational, budgetary, and legal environments in which the policy must exist. Recommendations for improvement are analyzed and their trade-offs are considered (Morag & Wollman, 2008).

The policy analysis methodology revolves around an analyst performing a cost-benefit analysis for a set of recommendations developed through research. The cost-benefit analysis may or may not be based on monetary benefits or costs. Further, the analysis may consider multiple goals in the cost-benefit analysis. This thesis uses a qualitative cost-benefit analysis that looks "at potential impacts of policy modifications or new policies. However, unlike the monetary cost-benefit analysis, the qualitative cost-benefit analysis attempts to assign values to qualitative factors, such as ethics, political acceptability and the like" (Morag & Wollman, 2008).

Bardach, 2009, outlines an eight-step process for conducting a policy analysis. In his book, *A practical guide for policy analysis: The eightfold path to more effective problem solving,* he primarily examines public policy analysis. The steps, or "eightfold path," are:

1. Define the Problem
2. Assemble Some Evidence
3. Construct the Alternatives
4. Select the Criteria
5. Project the Outcomes
6. Confront the Tradeoffs
7. Decide
8. Tell Your Story (Bardach, 2009, p. 8)

The definition of a problem or issue is the guide to the rest of the policy analysis. It is critical in diagnosing the issues or conditions that are the underlying causes of problems (Bardach, 2009, pp. 144–146, 195–196). In this thesis, the problem is defined in the Problem Statement Section and is expounded upon in the Introduction and Research Questions Section. Assembling the evidence involves researching a variety of sources to determine the nature and extent of the issue, assess the particular features of

the concrete policy situation, and identify policies that have worked effectively in similar situations. (Bardach, 2009, pp. 253–258). Research in the Literature Review Section involved consulting NIMS and ICS source documentation, as well as a variety of supporting academic references.

Once he or she commences research, the researcher begins to identify policy alternatives. Each policy alternative, or policy option, has its own chapter in this thesis. The Analysis Chapter evaluates each policy against a set of criteria. The analyst selects the criteria based on the intended outcomes of the particular policy (Bardach, 2009, pp. 442–443). Some commonly used criteria are efficiency, effectiveness, cost, process, legality, political acceptability, robustness, and improvability (Bardach, 2009, pp. 448–537). The criteria used in this thesis are as follows[6]: 1) effectiveness, 2) end-user acceptability, 3) complexity, 4) political acceptability, 5) cost.

An outcomes matrix is a common method of evaluating alternatives against their criteria[7] (Bardach, 2009, p. 700). From the matrix, the analyst is able to compare the strengths and weaknesses of each alternative as well as begin to project the outcomes. Projecting outcomes is a strategic forecast of the future of each alternative. In this step, the analyst must also consider emergent features, unintended consequences, and undesirable effects of each alternative (Bardach, 2009, pp. 666–681). When compared to other alternatives, each alternative may involve trade-offs (Bardach, 2009, pp. 424–425). Where one alternative may be rich in effectiveness and high in cost, another alternative may be lower in cost and effective enough to accomplish the stated goals. Once the alternatives have been evaluated, one or more alternatives may be selected. In some cases, the recommendations may not be mutually exclusive, rather they are recommended in the context of their strengths and weaknesses as individual alternatives (Bardach, 2009, pp. 306–308). The Conclusion Chapter of this thesis identifies recommendations based on the definition of the problem, research, and analysis.

[6] See Chapter VI—Analysis for an explanation of each of these criteria.

[7] The outcomes matrix for this thesis is located in Chapter VI—Analysis.

As a process, the policy analysis methodology is iterative. The problem is defined and redefined. Alternatives are conceptualized and reconceptualized. Criteria are revised. Projections are reassessed, and trade-offs are re-evaluated. Once this has been completed satisfactorily, the analyst "tells the story" (Bardach, 2009, pp. 796–797). In this case, the "story" is a thesis. In other arenas, it could be a presentation or a journal article. The intent is to convey the message in a format which will be robust enough to carry the author's intent through the implementation process[8] (Bardach, 2009, pp. 539–540).

Policy analysis is a methodology aimed at generating concrete solutions for existing policies that are not working or are not working well. There is no guarantee of success. The recommendations posited by this thesis have considered a range of variables and consulted many sources. In this thesis, the use of ICS as a component of NIMS is examined. The goal is to prevent the consequences of management failures that can occur in disasters and catastrophic incidents.

[8] An author would be remiss in failing to acknowledge the uncertainty that exists in any policy analysis effort (Morag & Wollman, 2008).

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II. LITERATURE REVIEW

A. ICS AND NIMS

Multi-agency and multi-jurisdiction incidents were a driving force behind the development and adoption of ICS and NIMS. ICS was born out of a need realized after the 1970 wildfire season in southern California (NFA, 1988, p. ix; Hannestad, 2005, p. 19); (Moynihan, 2007, p. 6). This wildfire season was especially significant and demanded resources from a vast area. Responders experienced exceptional difficulty in coordinating the resources. Anecdotal stories surfaced, such as fire apparatus passing each other on the way to fires at opposite ends of an expansive area (Cole, 2007, p. 209). Another common story is that of responders who called for a "tanker," meaning a truck,[9] which carries a large amount of water, actually received a "tanker," a plane that drops water and retardant from the air. Agencies identified several areas that were lacking and could be incorporated into a system. Situations had too many people reporting to one supervisor. Response agencies had incompatible organizational structures. There was no standardized way of communicating information about the incident, and when they needed to communicate, they had incompatible communication systems. Agencies were not coordinating their planning and operations, and they had difficulty in determining lines of authority. Further, there was a lack of incident action planning and back-up planning (Molino, 2006, p. 8).

Seven fire agencies banded together in an organization called the Firefighting Resources of Southern California Organized for Potential Emergencies (FIRESCOPE[10]) (Cole, 2000, pp. 207–210). The organization was chartered by the United States Congress in 1972 and charged with developing a model system (Cole, 2000, p. 206). The system was to be a framework for multi-agency coordination of complex emergencies that exceeded the capabilities of any single jurisdiction (FEMA, 1987 in Cole, 2000, p. 207).

[9] The proper name for the truck in this case is "tender."

[10] The history of FIRESCOPE and development of ICS has been summarized at length in many sources. A very short description is included here as context. Sources recommended by this author for further information on the development of ICS are NWCG, 1994; Cole, 2000; and Hannestad, 2005.

Within a matter of years, it became evident to practitioners that the model developed by FIRESCOPE Coalition could work for other types of emergency incidents (Hannestad, 2005, pp. 19–20; Cole, 2000, p. 207). By 1982, the system was spreading across the nation primarily by grassroots, or peer-driven, methods (Hannestad, 2005, pp. 19–20). The National Fire Academy in Emmitsburg, Maryland, began teaching the system as a nation-wide system in 1983 (Cole, 2000, p. 209). Although there was some participation from other first response agencies, prior to 9/11, ICS was primarily a fire service tool (Cole, 2000, pp. 209–210); (Jensen, 2010, pp. 18–19); (Hannestad, 2005, p. 19). Certainly, it was not a nationwide phenomenon, as it is today. The fire service was the first discipline to embrace ICS, followed by local emergency managers and many law enforcement agencies (Hannestad, 2005, pp. 19–20; Cole, 2000, pp. 209–210).

In response to the tremendous numbers of firefighter deaths and injuries each year, the National Fire Protection Association (NFPA) issued the first edition of *NFPA 1500, Standard on Fire Department Occupational Health and Safety Programs* in 1987. (NFPA, 1987). NFPA 1500 recommendations stimulated sweeping safety changes in the fire service. Among these changes was the use of an incident management system for all incidents (NFPA, 1987). ICS was the system of choice for many agencies. Other agencies used a similar system developed by Chief Alan Brunacini from Phoenix, Arizona. Brunacini's system was called the Fire Ground Commander (FGC) (Brunacini, 1985). Chief Brunacini was actually one of the members of the original NFPA 1500 committee (NFPA 1987); (Brunacini, 1985). He was a champion of safety and incident management. In developing his system, it was not his intent to undermine ICS; rather, he did what worked for his region.[11] This is noted here because it ties to the need for flexibility, which is discussed later in this literature review. Phoenix Fire Department and Chief Brunacini became famous in the fire discipline and beyond for their progressive ways. For many years, ICS and FGC purists argued the compatibility of the systems. At one point, prior to the issue of NIMS, there was a compromise that was actually called the National Incident Management System (NIMS). That version of NIMS was a product of

[11] The author knew Chief Brunacini during the early 1990s and heard him speak on several occasions. Further, the author was a member of the NFPA Occupational Medical and Health and then the NFPA Occupational Health and Safety Committees during the years of 1997 through 2004.

the National Fire Incident Management System Consortium. In informal circles, it was referred to as one-eyed NIMS.[12] What is pertinent to this thesis is that even though there were some differences in these systems, as well as some of the other systems along the way, the differences were often semantics and/or areas that could be worked around. A later standard, NFPA 1561, specified minimum requirements for an incident management system in an effort to ensure compatibility across systems (NFPA 1561).

After the events of 9/11, HSPD-5 put an end to any debate where incident management system would be used in the United States. NIMS, and subsequently ICS, became the law of the land. NIMS is a document composed of five components: Preparedness, Communications and Information Management, Resource Management, Command and Management, and Ongoing Management and Maintenance. ICS is one of the three components that comprise the Command and Management portion of NIMS. When more than one agency or jurisdiction must come together to solve an incident, the UC model of ICS is the command and management framework that the United States has chosen to use (NIMS, 2008).

B. ICS IMPLEMENTATION

The purpose of NIMS is to provide a standardized model for major incidents (Jensen, 2008, p. 1); (NIMS, 2008); (Christen, et al., 2001, p. 1). Implementation is a key issue in the context of this thesis, both in the context of implementing a program and in the context of applying the system as intended during an incident. When Hurricane Katrina struck in New Orleans, the local jurisdiction was not prepared to use ICS or NIMS (United States Senate, 2006, p. 562). Further, the state and federal response was not coordinated, nor was it conducted as specified in NIMS. This research questions the relationship between these failures and the implementation of the various management systems employed.

There are several issues with acceptance of NIMS and subsequently, ICS. Among these are its fire service history, the federal push-down, and the "it does not apply to us"

[12] As opposed to "two-eyed" NIIMS—the National Interagency Incident Management System or one of the NWCG's original terms for ICS.

mentality (Cole, 2000, pp. 209–210; Jensen, 2010, pp. 18–19). The fire service history presents challenges to other disciplines in the management of national level emergencies (Hannestad, 2005, p. 19; Cole, 2000, pp. 209–210). The critique is not without merit. Disciplines bring their histories and culture to the effort, and ICS training adapted to help bridge this interdisciplinary gap (Decker, 2011, p. 228.). With the issuance of Homeland Security Presidential Directive-5[13] (HPSD-5), and Homeland Security Presidential Directive-8 (HPSD-8), NIMS, and subsequently ICS, have taken on an "all-hazard" focus. With the all-hazard focus, there has been an effort to involve all of the interests, such as law enforcement, emergency medical services, and public health.[14] One common example of the change in mentality is in the delivery of ICS-300 (Intermediate ICS) and ICS-400 (Advanced ICS) courses. These courses are scenario-based involving a variety of hazards, from floods to public health emergencies. Course instructors/administrators are expected to fill courses with members from a variety of organizations (CDP, 2010). The intent is to build networks, as well as provide a variety of perspectives (CDP, 2010). This multi-disciplinary approach is an effective method of moving beyond the fire service focus of early ICS efforts, and it is part of an effort often referred to by ICS practitioners as "de-smoking." Despite these efforts, Decker indicates that some hurdles to the implementation of ICS include workplace cultural issues and employee and management values, attitudes, and motivation (Decker, 2011, p. 227).

A second issue with acceptance has been the way in which NIMS was mandated. A presidential directive, HSPD-5, mandated the system at a time when the country was sensitive to the 9/11 attacks. This precluded massive resistance and made national discourse on the subject difficult (Jensen, 2010, p. 96). Following the events of 9/11, emotions ran high. Policies such as NIMS and the Patriot Act were able to be implemented without tremendous resistance, presumably due to the fear of another attack (Leifeld 2007, pp. 106–107; Jensen, 2010, p. 96). These types of policies may never have been accepted in a pre-9/11 world (Hamm, 2004).

[13] HSPD-5 required the establishment of a national incident management system and HSPD-8 established an all-hazard national preparedness goal.

[14] This is not intended to be an all-inclusive list.

Practitioners began to understand what HSPD-5 and HSPD-8 meant for their organization. Many organizations question the applicability of ICS to their jurisdiction. Jensen studied this at the county emergency management level. She discovered that many at the county level see the All-Hazard ICS as a direct copy of a fire-based system; and therefore, only parts of the system are applicable to areas such as counties and rural jurisdictions (Jensen, 2010, p. 95). McKay, 2010, questioned NIMS applicability in the context of the Deepwater Horizon Oil Spill and found issues as well.

The system was now law, as well as a gatekeeper for grant funding. Consequently, all disciplines and jurisdictions had to participate, even those which questioned the validity of ICS. There was no buy-in effort, nor was there a process, such as a comment and review period, or a process for state and local entities to make changes before the system became the law of the land (Leifeld, 2007, pp. 106–107 in Jensen, 2010, p. 95).

A third issue is the challenge of selective implementation or a pick-and-choose mentality used by incident managers. Jensen studied this aspect and found that the preponderance of county emergency managers and rural jurisdictions had not implemented the system in the way it was intended (2010, p. 69). Rather, they used the parts that they saw applicable and disregarded the rest. Their implementation efforts in many cases were mainly to be "NIMS compliant," so that they would be eligible for grant funding (Neal & Webb, 2006; Jensen, 2008; Jensen, 2010, pp. 18–19, p.69). This is an important question for the research at hand, as this research seeks to identify the issues related to management failures. Are individuals subverting the system making it less effective through their pick and choose approach, or are there other factors that can be identified to improve the system for all involved?

Cole (2000), however, had a different perspective on research with ICS. He ascertained which parts were more important or rated higher than others. This implies that agencies were emphasizing or picking the principles that they used most as they used ICS. Cole's research consisted of experienced practitioners from a state. The state was California, the birthplace of ICS. These practitioners had operated at countless multi-agency, multi-jurisdictional incidents. What this research shows is that even though the

system may not be used exactly as written, it is still effective. For example, one practitioner may rate hierarchy as more important while another may rate terminology higher. Maybe this has to do with local conditions, or possibly with local personnel and politics.

Basing their argument on a variety of incidents where management failures occurred, there are those who challenge the efficacy of ICS to be the nation's system (Buck, Trainor, & Aquirre, 2006, p. 3; Bellavita, 2010). This author, however, contends that the primary cause of these management failures is NIMS and ICS implementation. This includes implementation on the grand scale of execution, training, and making the system our nation's system—i.e., as a policy. Further, it includes implementation at individual incidents. Cole argues that implementation is a key element when he states that "another common criticism of ICS is that there are considerable differences in how the system is implemented from one agency to another, and from one region to another (2000, p. 212)." Even when jurisdictions adopt and implement NIMS and ICS, there are often inconsistencies (Jensen, 2010, pp. 18–19). Implementation can have different meanings. In some organizations, ICS implementation simply implies that someone is in charge, while in others ICS implementation has been nothing short of "to the letter: (Wenger, et al., 1990, p. 9)." Presumably there is everything in between. Organizations have a tendency to implement or emphasize what applies to them (Jensen, 2010, pp. 18–19). Jenson also addresses the topics of implementation, as well as training and practice. Her respondents indicate that "the trainings presented a lot of information at one time and that there was considerable time between the little training they had. Interviewees stated that they did not have enough opportunity to use NIMS before the disaster (Jensen, 2008, p. 12)." Pertinent to this thesis is the concept that multiple authors have discovered that entities are using ICS in spirit, even though they are emphasizing different portions—the portions that are pertinent to their region.

As a policy, NIMS implementation was truly ambitions (Jensen 2010, p. 23). Untold numbers have been trained to comply with the resultant NIMS mandate that took

effect in 2006[15]. Agencies of all types—public health, voluntary organizations active in disaster (VOADs), law enforcement, emergency management, EMS, fire, and others were now part of the NIMS fold. Courses were structured for and composed of interdisciplinary attendees. NIMS was to become part of each organization's everyday organizational operating principle, as well as their default method of operation for multi-agency and multi-jurisdictional incidents—up to and including incidents, such as those on 9/11 and Hurricane Katrina. The intent was for local, tribal, state, and federal agencies to seamlessly work together, share information, have a common operating picture, and maintain situational awareness when disaster strikes.

Over the next few years, a massive implementation effort ensued. The eventual carrot or stick was eligibility for preparedness funding. During what the author will term the "compliance years" of 2005 through 2011, the words compliance and all-hazard were at the top of every conversation. NIMS would be maintained by the National Integration Center (NIC), the "Ongoing Management" arm of NIMS. Individual agencies would keep track of their compliance using the National Incident Management System Compliance Assistance Support Tool (NIMSCAST). Courses were available through various means including classroom-based offerings offered by each state and on-line courses through the Emergency Management Institute (EMI). Funding became the driving force. Not only funding for grants, but also the possibility for federal reimbursement for major incidents—based on using the right forms. Bellavita put it in its simplest form "States and local communities are supposed to use NIMS because otherwise they do not get homeland security money (2010)." Often this grant money had strings in the form of use specifications, such as terrorism. Or, the grant money had pick-up clauses that specified an agency must assume the maintenance or payment costs after the third year. It would seem that many agencies were applying for grants for things that really were outside of what they could do—or as Joseph Pfeifer termed it—their core competencies (Pfeifer 2005, p. 8). The corresponding term in practitioner circles was "grant crack."

[15] The author's research yielded that FEMA was not required to report these numbers.

Arguably, the resultant effect was that NIMS implementation missed the mark (Jensen, 2010, p. 114; Decker, 2011, p. 229). Just as many agencies were going through the motions, checking the boxes, so too was the NIMS Implementation effort. On the other side of implementation, five or six years later, NIMS in 2011 is still not the way of life that it was intended (Jensen, Decker, 2011, p. 229). There has been significant push-back. Practitioners, administrators, and academics alike are lined up on both sides of the "does it or does it not (work)" question. Further, what ICS and NIMS mean to one person can be significantly different from what it means to another (Jensen, 2010, pp. 18–19). Potentially, there is far less understanding now than when we started. It is evident that ICS has suffered the "emergent features problem" identified by Bardach (2009, Kindle p. 680). Bardach noted that during implementation a policy must be "robust" enough for the intent to withstand the emergent features that will develop as the policy takes on its new life (Bardach, 2009, pp. 539–540). Pertinent to this thesis is the idea that the original intent of ICS may have been different than how is portrayed in the context of NIMS.

1. Is NIMS the Right System?

> *Many emergency management, fire and other public safety professionals believe NIMS should be used because their experience says it works, and there just aren't any better alternatives*. –Chris Bellavita, 2010

In September 2005, CNN showed a compelling video of the New Orleans Mayor begging for help, not NIMS, from the federal government. The federal government's own NIMS custodian, Michael Brown, did not take advantage of the frameworks available in FEMA's response to New Orleans. More than one author has noted that ICS would not have handled the response needed in the initial stages of Hurricane Katrina in New Orleans (Buck, et al., 2006, p. 21). California, the birthplace of ICS, operated for nearly thirty years in the midst of numerous earthquakes, wildland fires, riots, and other significant incidents—without NIMS. Now, they are obligated to use a federally imposed system, which is based on the system they created. Academics and practitioners alike are asking if NIMS was the solution to the problem we did not have (Jensen, 2010, p. 26).

There is concern over the lack of research that proves NIMS is effective in a large-scale disaster or catastrophic incident, such as the World Trade Centers and Hurricane Katrina. One common criticism, or at least a point that many bring up, is that there was no true validation process that proved that ICS was the ideal system for a national system (Jensen, 2010, p. 95); Cole, 2000, p. 208; Moynihan, 2007, p. 10). There are limited empirical studies (Moynihan, 2007, p. 10). Critics, such as Buck Trainor and Aguirre, argue that ICS is an incomplete and emerging system and using "ICS as a comprehensive principle of disaster management probably will not succeed as intended (Buck et al., 2006, p. i, 3)." Moynihan notes that ICS "arose from craft-based practitioner knowledge," and it has become part of a policy that presents it as "a proven, noncontroversial, and common-sense best practice (2008, p. 08)." Comfort, 2007, indicates that NIMS "largely ignored the complexity and uncertainty inherent in actual disaster environments (p. 190)."

There seem to be as many proponents as there are opponents of ICS. Cole, 2000, states:

> Within CDF there is no longer any doubt about the adaptability and effectiveness of ICS for managing emergencies. The majority of CDF's employees have never known another system for managing emergencies, and although ICS was originally developed for use on major emergency incidents, the system has proven so adaptable that its principles have become integrated into most facets of CDF's day-to-day emergency management activities. ICS is also being used increasingly as a management system for planned non-emergency events, such as major conferences and training exercises, and for coordinating long-term capital improvement projects. (Cole, 2000, p. 207)

An Ohio survey by Comfort indicated:

> 95 per cent of all respondents indicated the principles as applicable in their discipline. The fire service and public health disciplines were strongest in their views that ICS was applicable in their fields and that the training offered was generally beneficial. Law enforcement seemed divided in their view of ICS. Police agencies responding to the survey stated that a large majority, 88.8 percent, saw ICS training as beneficial to all personnel within their organization and 98.0 per cent rated as 'agree' or 'strongly agree' to the statement that 'ICS training is applicable to personnel in our professional discipline'. By contrast, 98 per cent said they do not utilize

> ICS in their day-to-day operations, and only 55.5 per cent report using ICS at least "sometimes" during emergency responses. All said they would utilize ICS in the event of a disaster or other major event. The discipline of public works had the overall lowest ratings of ICS. Sixty-five percent of public works respondents said they were either "undecided" or "disagreed" about whether or not ICS was beneficial or applicable to their discipline. Nearly all of public works survey participants report that they seldom or never utilize ICS principles in day-to-day operations. "We have not done a very good job of communicating the importance of a uniform command system for use in major incidents and disasters." (Decker, 2011, p. 227)

The author is unable to find a true and unwavering successful implementation of NIMS; however, many ICS successes have been documented. Despite a lack of empirical evidence validating the system, some such as Cole, Moynihan, and Long argue there is not a better system which can fit with the current context of the United States' homeland security enterprise (Cole, 2000, p. 208; Moynihan, 2007, p. 10; Long, 1990, p. 9). When it comes to answering the question of is it or is it not (the right system), at least in academic literature, Moynihan may have put it best "It remains an open question whether the ICS should be pursued in such settings. To answer this question requires a comparison with a viable alternate model of crisis response, and the mandated status of the ICS largely precludes such a comparison (Moynihan, 2008, pp. 224–225)."

Bardach defines a smart or best practice as understanding and making use of what looks like good ideas from somewhere else (Bardach, 2009; 1227, 1891). Smart practices are not necessarily perfect practices. ICS started as a wildland firefighting system. It was adapted for other firefighting incidents, as well as disaster management. Then, it was mandated as a national system. ICS transferred from a peer driven system to a nationally mandated system. With this transfer, much of the richness of the system has been lost in mass implementation and perceptions. Further, the system has taken on a procedural or "have-to" mentality versus a flexible or "need-to" mentality. Interoperability of people, organizations, and systems has continued to be an issue. This thesis contends that ICS is a "smart practice," which can be improved through the recommendations contained herein.

What is important to emphasize here is that these are overarching frameworks and not the strategies and tactics. In other words, ICS does not tell a local jurisdiction what

they must do to resolve the situation. ICS does not replace specific local and regional response and disaster planning (ICMA, 2008, p. 40).

2. NIMS and Complexity—"What Can We Do to Prevent This in the Future?"

> *Policy often intervenes in systems of some complexity, systems populated by actors who adapt to your interventions in surprising ways and whose adaptations lead other actors to create still further adaptations*. (Bardach, 2009, Kindle pp. 680–681)

> *In summary, intergovernmental crisis management can be reframed as a complex, adaptive system that adjusts and adapts its performance to best fit the demands of an ever-changing physical, engineered, and social environment*. (Comfort, 2007, p. 195)

In recent history, the United States has experienced a number of disasters and catastrophic incidents. In the wake of each of these events, government officials and citizens examine the response in an effort to determine "What can be done better next time?" and "How do we prevent this from happening again?" In the quest for the answer to these questions, both elected officials and bureaucrats seek various policies. A recent example of this is the National Incident Management System (NIMS). NIMS is a fusion of the ICS and broad governmental policy aimed at providing a systematic response to incidents. NIMS is an integral part of the National Response Framework (NRF), which specifies federal, state, local, and tribal responsibilities for all aspects of catastrophic incidents. NIMS and the NRF are the United State's policy answers to the question of "What can be done better next time?" and "How do we prevent this from happening again?"

As falling grains of sand form a pile, the pile will eventually reach a critical state where it cannot support its own weight. Then, it will collapse. This is the analogy used by Bak, Tang, and Wiesenfeld (BTW) (1987) to describe a concept called Self-Organized Criticality (SOC). Lewis, 2011, describes the concept of SOC as follows: "Systems exhibiting SOC tend to self-organize into a critical state, and once in this state, any change to the system results in chain reactions that may impact a widespread number of elements in the system." If the process of forming a sand pile was repeated over and over,

hundreds then thousands of times, the pile will collapse every time. There will be no predictable pattern as to when the pile would collapse, but eventually, if one keeps adding sand, every pile will collapse. This applies equally to sand piles as it does to fires, natural disasters, mechanical and technological systems, and social and political systems—such as NIMS. SOC shows how systems can be simple, but at the same time complex. A small adjustment to one part of the system can cause unpredictable and substantial effects to the entire system (Lewis, 2011, Kindle pp. 84–91, 100–107).

The fact that NIMS became policy was quite possibly a predictable event in an incremental series of events that began in the early 1970s with the development of ICS. The answer to why this occurred may lie in complexity theory. As incremental improvements are made to the organization of incident management, it becomes increasingly complex. As the complexity increases, systems can approach a point where they become so efficient, and their components become so inter-related, that a small failure in one part of the system can result in a cascading failure through all of the components. The result could be a catastrophic failure of the system. One of the keys here, according to BTW and Lewis, is incremental change or adjustment. Lewis, 2011, describes the process in the context of various systems. Adjustments are made for efficiency, or to allow systems to run at peak capacity. Redundancy and reserve capacity is engineered out of the system and the system becomes increasingly interdependent. According to Charles Perrow, substantial, but not catastrophic events along the way are called “normal accidents.” According to Lewis,

> Society responds to Perrow’s normal accidents by making small adaptations, typically to optimize or remedy their perceived cause or causes. These adaptations are fed back into the system in order to improve it. Self-organization can take many forms (which I will discuss later) but in many cases so-called improvements actually drive the system closer to its critical point. (2001, pp. 366–369)

In the history of the ICS, it is the author's contention that the fact that NIMS/All-Hazard ICS[16] became a national policy was a normal accident—a hiccup in the history in an otherwise useful and smart system. The resultant policy has unknown effects on the effectiveness of system. In the context of disaster management, incidents, such as the Oklahoma City bombing, the 9/11 attacks, and Hurricane Katrina are presented here as the grains of sand. As grains of sand or incidents continue to occur, and add to the virtual sand pile of disaster management, policy makers seek to make incident management more efficient. By taking ICS, an arguably smart practice, and spreading it across the enterprise of homeland security, incident management presumably became more efficient. The result was a seemingly simple system with tremendous underlying complexities. Bellavita relates to this complexity in the realm of homeland security, and in reference to shaping patterns of homeland security, Bellavita, 2006, relates

> The other side of the homeland security strategic jungle – the side composed of complex social systems – is characterized by an ontological[17] state of unorder. Cause and effect are known only after the fact, and through consensus. Replicability is illusory at any but the most global level of generalization. Best practice is replaced by smart practice, emergent practice, or novel practice. (Bellavita, 2006, p. 15)

Bellavita further states:

> A central justification for speculating about homeland security futures is to make strategic decisions [today] that will be sound for all plausible futures. Based on the nation's experiences over the past five years, it appears the rapidly formed homeland security community remains too disordered to make coherent strategic decisions that have much intentional impact on even the short-term future. Instead, we have lots of people and organizations making and reacting to multiple homeland security decisions, generating a bubbling swamp of intended and unintended consequences. (Bellavita, 2006, p. 4)

[16] The result of HSPD-5 and HSPD-8, which called for a national incident management system and an all-hazard national preparedness goal, respectively.

[17] According to Merriam-Webster: Ontological – 1) of or relating to ontology; 2) relating to or based upon being or existence.

In the context of this discussion, NIMS is an outcropping of a series of events that define a pattern in the realm of homeland security. One could view this as a normal accident, or a predictable and significant occurrence, in the life of ICS. With or without the policy of NIMS, the smart practice of ICS can stand on its own merits. The concepts within ICS are simplistic, but when they become part of the NIMS generalization, they become a precursor to unorder.

3. Who Is in Charge? There Can Be More Than One IC or Unified Command

Fundamentally, ICS revolves around a person known as the IC. The system is said to be a top-down system that develops around this person based on the management needs of the incident (Federal Emergency Management Agency, 2008, p. 47). Incidents that involve only a single agency and a single jurisdiction are called single command incidents. In these incidents, Command is graphically represented as a square box with the IC's name inside (See Figure 1) (Federal Emergency Management Agency, 2008, p. 49). This box is at the top of an organizational chart that looks graphically similar to a traditional business organizational chart (NRT, pp. 9–10). Determination of who will be the IC on single command incidents is usually quite simple. Most organizations specify this in some form of written procedure.

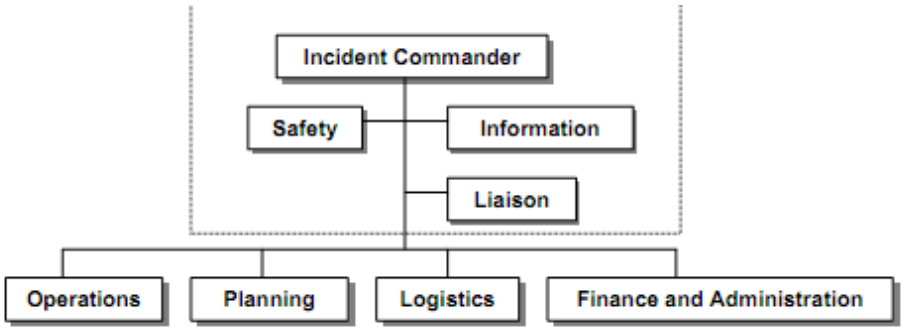

Figure 1. Single Command (From NRT (p. 9)

When incidents involve more than one agency or extend beyond one jurisdiction, responders use a UC. UC is graphically represented as a triangle at the top of the organizational chart (See Figure 2). Instead of there being a person in charge of the incident, there is a small group of people who are decision-making representatives for each agency and jurisdiction involved in the incident (Federal Emergency Management Agency, 2008, pp. 3–13). The group appoints a spokesperson, usually the representative from the agency with the greatest operational stake at that phase of the incident, to carry forward the orders and decisions of the UC (NRT, pp. 13–14). The name of the organization with the greatest operational stake is at the top of the triangle (Federal Emergency Management Agency, 2008, pp. 3–15, 3–32). As the objective of the operation changes throughout the incident, the organization with the greatest operational stake changes also. For example, when immediate life-saving measures are complete and the incident becomes primarily a crime scene. When this occurs, the triangle (figuratively) rotates, and there is a new organization at the top. Note that the representative from this organization is not the IC, but rather the spokesperson for the UC.

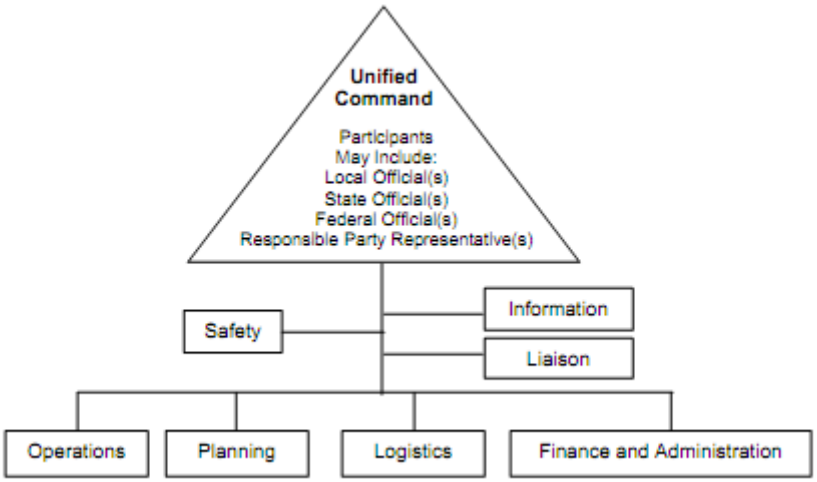

Figure 2. Unified Command (From NRT (p. 15)

ICS is a top-down system that uses a scalar network model (NFA, 1988, p. SM 1-4; NIMS, 2008, p. 47). The literature leads many to believe that there is one "command" for a catastrophic incident. In reality, there are several command options for any catastrophic incident, and it is possible to have more than one command for a given incident. Catastrophic events can begin as a series of calls for distress, or a series of occurrences discovered by field operating units. A central dispatcher dispatches the units, or units stop and self-assign to incidents that they find. What ensues is a mass effort that consists of tens if not hundreds of individual commands[18]. Therefore, it is incumbent upon overhead personnel,[19] such as agency administrators, politicians, and emergency operations center personnel to implement the appropriate coordination entities or command options to support the individual commands that will emerge. This will reduce the number of individual commands and autonomous resources, but it takes time to accomplish. The important concept to note is coordinating these commands (Jensen, 2008, pp. 8–9).

Incidents, such as the Oklahoma City bombing, the 9/11 attack on the Pentagon and the Atlanta Olympics bombing, occurred in well-defined areas and were appropriate for one UC (Moynihan, 2007, p. 16). These incidents were handled with more of a textbook version of the ICS chart. An IC can handle these incidents in a different manner than a natural disaster, which occurs over a large area. In such cases, the UC can consider options, such as an Area Command[20], an Incident Complex[21], multiple operations or

[18] In many jurisdictions, for example, each car accident, medical call, building fire, etc. is an individual command.

[19] In ICS terminology, "overhead" personnel are "Personnel who are assigned to supervisory positions which include IC, Command Staff, General Staff, Directors, Supervisors, and Unit Leaders (ICS Term Glossary, 1994)."

[20] Area Command: An organization established to oversee the management of multiple incidents that are each being handled by a separate ICS organization or to oversee the management of a very large or evolving incident that has multiple Incident Management Teams engaged. An Agency Administrator/Executive or other public official with jurisdictional responsibility for the incident usually makes the decision to establish an Area Command. An Area Command is activated only if necessary, depending on the complexity of the incident and incident management span-of-control considerations. (NIMS, 2008, p. 135).

[21] An Incident Complex is two or more individual incidents located in the same general proximity that are assigned to a single IC or Unified Command to facilitate management. (ICS 400 SM, p. 3–18).

logistics sections, or Branch Tactical Planning[22] (ICS 400, 2008; Moynihan, 2007, p. 207). Much of the literature fails to discuss these or other options. The ICS that is portrayed to the masses does not embrace these concepts. The 2011 version of the NIMS Training Program specifies "Everyone involved in emergency management (to include emergency operation center personnel in support of the field), regardless of discipline or level of government, should take the NIMS baseline curriculum courses (Independent Study-700 and ICS-100)." ICS 100 does not cover any of these concepts. IS-700 addresses Area Command on two slides and MACS on three slides. The content is superficial. Hence, the preponderance of responders may have a different understanding of ICS than the overhead personnel.

ICS-400: Advanced ICS, (2008) outlines that multiple commands and area commands are coordinated through MACS. An EOC is a MACC, and it is possible for an incident to have multiple MACCs or EOCs, if it is of a large enough magnitude. MACS coordinate through a state official and the Federal Coordinating Officer (NRF, 2008, p. 67). A common misconception is that the Federal Coordinating Officer, who is the federal government's representative on disasters and catastrophic incidents, works with the IC or UC. While this can occur, it is more appropriate that the Federal Coordinating Officer interfaces with the MACC to provide assistance, coordination, and resources (NRF, 2008, p. 67).

Both NIMS and ICS make it clear who is in charge at a given situation (NIMS 2008, pp. 48–51). Proponents of the system say that this is clearly delineated within the framework and should not be an issue. In reality, this is often a contentious question (Carwile, 2006, p. 1–2). ICS rests on a delegation of authority by the top elected or appointed official for the jurisdiction (NIMS 2008, pp. 48–51). For example, in a city with a strong mayor form of government, the Mayor would appoint the IC or the members of the UC. There are many types of jurisdictions, however. For example, an

[22] Branch Tactical Planning means that the detailed action plans are developed within the Operations Section at the Branch level with the Planning Section providing support and coordination. It is used when: 1) The incident becomes so large that there is no single set of objectives that would logically pertain to the entire incident. 2) Special technical expertise is needed for planning. 3) It is not otherwise feasible to prepare and distribute the IAP within the required timeframe. (ICS 400 SM, p. 3–29).

incident that occurs on an interstate highway going through the middle of a city may fall under the command of the state police or highway patrol by state statute. With very few exceptions, each incident occurs where some governmental agency has jurisdiction. When an incident occurs in an area that spans multiple jurisdictions, such as two neighboring cities, members from each jurisdiction compose the UC (Carwile, 2006, p. 2).

The question of "who is in charge?" is directly relevant to the primary research question because it addresses the issue of a misunderstanding by many. This ties to ICS implementation and failed implementation. Having to focus on who is in charge when the most dynamic part of the incident response is happening is akin to a football team arguing who is going to make a tackle. Deeper than this is the issue of the flexibility and scalability of ICS, its ability to accommodate a range of incidents. Those who would question its ability may not be considering the entire system. The answers to the question of "who is in charge?" are "it depends" and "of what." There is no simple answer.

C. SCALABILITY

One of the key aspects with the applicability of ICS as a national system is scalability, or the ability to accommodate a variety of incidents (Christen et al., 2001, p. 1). NIMS is considered to be,

> A comprehensive national approach, applicable at all jurisdictional levels and across functional disciplines, improves the effectiveness of emergency management/response personnel across the full spectrum of potential incidents and hazard scenarios (including but not limited to natural hazards, terrorist activities, and other manmade disasters). (NIMS, 2008, p. 5)

There are few authors who would disagree with the concept that NIMS has properties that make it scalable, but not all agree that it is infinitely so. Moynihan and Quarantelli indicate that as the size of the organization grows, there becomes a certain point in which it becomes less effective due to the difficulty in coordination (2009, p. 3; 1998, p. 383). One has to question if this growth issue relates to management failures more broadly? Although ICS is generally presented and intended to serve as a system that

can adapt to different sized departments and incidents, the ICS framework's ability is questioned by these authors with regard to this important issue of growth.

Pertaining to the issue of growth, a common theme among the available literature is that it looks at a microcosm of ICS. This microcosm is the traditional ICS chart (See Appendix B), where the IC or UC is "in-charge." Much of the research fails to consider the concepts taught in *ICS-400: Advanced ICS.*[23] This is significant because it has the effect of distorting the way many people see ICS. To this author, this is the crux of many ICS issues, perceptions and misconceptions. The idea that there can only be one "command," and that everything else works through that command, is only one small example of how ICS works. Tying this to Moynihan, while it is evident that as the size of the organization grows, coordination becomes difficult; one must consider that there are other options, such as the concepts mentioned above to address this issue.

Catastrophic incidents and disasters have many variables, and management success or failure goes well beyond just implementing a given management system. This is a core consideration in this research. ICS and NIMS are not strategies and tactics for disaster management. They are frameworks for managing the response. Strategies and tactics for a given incident or disaster must come from skilled practitioners and preparedness—there is no simple checklist to follow (Harrald, 2006, p. 264). A report by the Government Accountability Office supports this concept by noting "We also identified the need for validated operational planning in the aftermath of Hurricane Katrina, noting that to be effective, national response policies must be supported by robust operational plans. (GAO, 2010, p. 4)"

D. FLEXIBILITY

> *Effective responses depend on the ability of organizations to simultaneously sustain structure and allow for flexibility in the face of rapidly changing disaster conditions and unexpected demands*. (The National Research Council, 2006, p. 143 in Jensen, 2008, p. 2)

[23] These concepts include incident complexes, dividing an incident into two or more commands, branch tactical planning, area commands, and multi-agency coordination systems (MACS).

> *Traditional science and certainty will not lead us to a homeland security future worth creating*. Adaptability may. Chris Bellavita (2006, pp. 11–12)

In the context of ICS implementation, both as a policy and as an on-scene management system, flexibility is a key issue. Authors support both sides of the issues of flexibility, adaptability, and improvisation. Some argue for a closed, or command and control type of system. Others argue in favor of an open, adaptable system. Some propose that the two types exist in harmony and do not negate each other. For example, Harrald suggests,

> The discipline provided by the ICS and the improvisation required by a problem-solving, open-system response are often assumed to be opposite ends of a linear scale. Recent experience prior to Hurricane Katrina, however, suggests that these are not opposites, that agility and discipline can both be achieved. Successful improvisation and creativity during the response to the attacks on the World Trade Center are discussed by Kendra and Wachtendorf (2002), Mendonça (2005), and Mendonça and Wallace (2004). Improvisation in the context of a successful implementation of an ICS structure during the response to the Pentagon is described in Harrald, Renda-Tanali, & Coppola (2002, 2006, p. 268)

The NRF and NIMS both propose their flexibility. For example, the NRF (2008) states,

> It can be partially or fully implemented in the context of a threat, in anticipation of a significant event, or in response to an incident. Selective implementation allows for a scaled response, delivery of the exact resources needed, and a level of coordination appropriate to each event. …Response must be quickly scalable, flexible, and adaptable. (p. 47)

Other authors concur,

> The adaptability of ICS means that the system can accommodate not only a variety of incident types, but also a variety of incident sizes and operational environments. Since specific functions and organizational elements are activated only at the time and to the extent dictated by the operational requirements of a particular incident, the system can be custom-scaled to the needs at hand. (Chase, 1980; Goldfarb 1997; in Cole, 2000, p. 212)

Yet, others challenge this claim. Walker et al. (1994, p. 42) stated that "the traditional NIIMS was designed as a closed, command and control system" and that it historically operated effectively in emergency situations where like organizations (e.g., firefighters) with uniform goals and relatively homogeneous organizational cultures were integrated into a single organization (Harrald, 2006, p. 263). Harrald further states that "It is doubtful that the extensive and expensive changes to the National Response System preserved the agility, flexibility, and creativity that have been essential in past response operations (2006, p. 269).

Harrald proposes an "Organizational Typology of Response Organizations" based on a matrix using agility and discipline. Agility refers to the culture of an organization in terms of rigidity or creativeness. Discipline refers to the structure of the organization, either closed or open (Harrald, 2006, pp. 267–268). Figure 3 illustrates the four types of organizations.

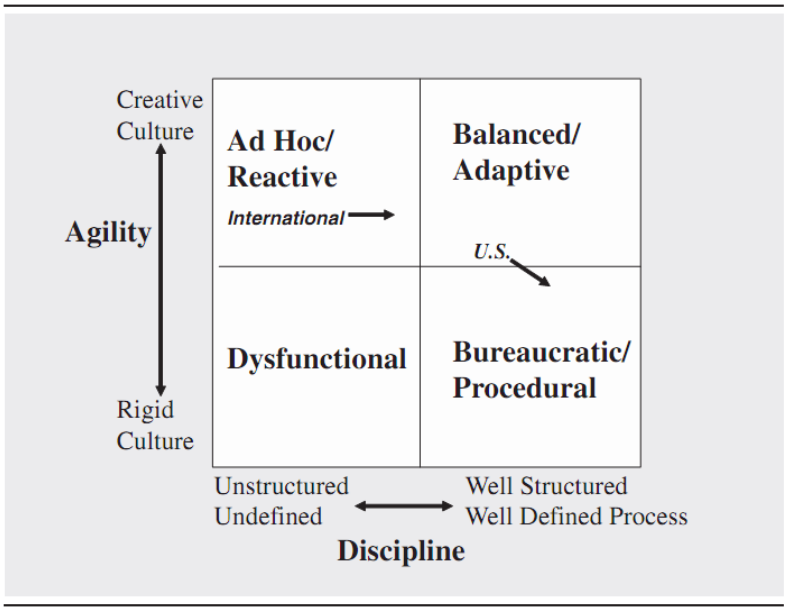

Figure 3. An Organizational Typology of Response Organizations (From Harrald, 2006, p. 268

According to Harrald, the United States' system (NIMS) is a "Bureaucratic/Procedural" system characterized by defined structure and well-defined

processes and procedures. This type of system is relatively rigid and unable to change. "Bureaucratic/Procedural" systems have the weakness of not being to recognize and adapt to unexpected events, and they are in danger of becoming bound by procedure. They do exhibit the ability to mobilize and coordinate mass resources and can produce consistent training. (Harrald, 2006, p. 268)

In Harrald's Organizational Typology, the ideal system is a "Balanced/Adaptive" system. He gives the example of the performance of the United States Coast Guard's performance during Hurricane Katrina. The Coast Guard was able to adapt to the multitude of circumstances and affect the rescue and evacuation of multitudes of trapped victims. "Balanced/Adaptive" systems are characterized by a defined structure with well-defined processes and procedures, but they are also able to be creative and improvise. Their weakness is that leaders "must be innovative as well as technically competent" and the selection and training of leaders is difficult. "Balanced/Adaptive" systems have the strengths of a "Bureaucratic/Procedural" organization, but they differ in that they have the ability to rapidly adjust to circumstances and other coordinating organizations. The goal, according to Harrald, would be for NIMS and ICS to resemble a "Balanced/Adaptive" system.

Other authors concur with the spirit of Harrald's work. Mendonca, 2001, suggests that "organizations need to maintain flexibility in order to respond to unanticipated contingencies (p. 38)." Koehler, Kress and Miller stated: "due to some or all of these factors, the planned emergency response system will probably not be the one that emerges. The one that does emerge, most likely, will have a tendency to be locally self-organizing, somewhat unpredictable in its interorganizational linkages, and likely to succeed or fail in unpredictable ways (2001, p. 295; Jensen, 2008, p. 3)." Further, Comfort concludes "The conceptual framework for an emergency management system must necessarily accommodate change and uncertainty (2007, p. 193)"

Policy Option B discusses the need for flexibility in incident management. Its focus is on adaptability as opposed to scalability. Flexibility in this sense will be coupled with the concepts of considering the individuality and locality of each incident and

region. Individuality and locality are properties of self-organizing systems[24]. It is the goal of this thesis to show that flexibility will reduce complexity in NIMS and ICS.

E. THE "ALL HAZARD" MEDIOCRE GENERALISTS

In recent times, there has been an increased emphasis on All-Hazard and All Hazard IMTs. This is a result of HSPD-8, which required an all-hazard preparedness goal. ICS has been part of "a long term, all-hazard concept" since the 1980s or earlier (NFA, 1988, p. xi). During the late 1980s and early 1990s, the ICS text indicated that it was an all-hazard system (ICS, 1988, p. xi). Further, other documents have been part of the all-hazard concept for years. One example was the 1996 publication of the FEMA Guide for All-Hazard Emergency Operations Planning. The "All-hazard" concept is not new; however, it is new to many with the implementation of NIMS.

"All-hazard" has several implications for the conversation at hand. Since 2003, when President George W. Bush issued Homeland Security Presidential Directive-5[25] and Homeland Security Presidential Directive-8[26], the term "all-hazard" has taken on various meanings (Bellavita, 2008, p. 4). To some, such as in the 2007 National Strategy for Homeland Security, it is interpreted as every possible hazard (HSC, 2007). While to others, it means the most probable hazards (Waugh in Bellavita, 2008, p. 4). According to Donahue et al., "The all hazards approach attempts to "optimize" (in a loose sense) institutional plans and actions across disaster scenarios by trading off specificity for a general reduction in hazard or risk (Donahue et al., 2012, p. 1)." Some of this debate stems from, and adds to, the lack of a single definition of "homeland security" (Bellavita, 2008, pp. 1–2).

Part of the current "all-hazard" has been fiscally focused. The other part has been in an effort to develop an air of inclusiveness (FEMA, 2010, p. 1–2). One example occurred after 9/11 when there was additional funding available for terrorism response

[24] Self-organizing systems are elaborated in Chapter III, Policy Option A.

[25] Homeland Security Presidential Directive-5 (HSPD-5) established a national incident management system.

[26] Homeland Security Presidential Directive-8 (HSPD-8) established a national preparedness goal.

and preparedness (GAO, 2012, p. 1). Some of the stipulations on the equipment were interpreted as so stringent, that agencies were not able to use equipment bought with "terrorism money" for incidents such as natural disasters (GAO, 2012, p. 16). In 2010, the Quadrennial Homeland Security Review Report came out with a modified definition of homeland security that included natural disasters: "Homeland security is a concerted national effort to ensure a homeland that is safe, secure, and resilient against terrorism and other hazards where American interests, aspirations, and way of life can thrive (DHS, 2010, p. 11)." This lifted the perceived restrictions and made terrorism money and disaster money interchangeable.

Moynihan concluded, "Even with command and control systems, ICSs depend on network values, such as trust and norms of reciprocity to succeed (2007, p. 7)." This considers the soft or people part of disaster and catastrophic incident management. It ties directly to an air of inclusiveness that has come with the implementation of NIMS and also ties to the term "all-hazard." Simply, we need each other and turf wars have no place in a command post or emergency operations center. It is the author's opinion, that with the new "all-hazard" focus, the pendulum has swung far to the side of inclusiveness. This concept is discussed further in Chapter V, Policy Option C.

The recent "all-hazard" emphasis has caused a generalization in the response community. According to Donahue, the 1996 publication of the FEMA Guide for All-Hazard Emergency Operations Planning marked the shift from specific scenario planning to focus on a general approach that addressed commonalities between hazards (Donahue et al., 2012, p. 1). Arguably, this was a key moment in the shift to what the author terms "mediocre generalists," or incident managers who believe they can manage incidents based on the checklists and guidance given by NIMS. It has given many the idea that they are prepared for anything because of their ICS training. If anything, this is a false sense of security. ICS is not a strategy for an incident. It is the management of the management of the incident. Setting up an efficient office and running an efficient planning cycle does not solve real problems caused by a disaster or catastrophic incident. Real people who are experts in their discipline will always be needed to develop the strategies and carry out the tactics (Ennis, 2008, p. 58).

F. LITERATURE REVIEW ANALYSIS AND CONCLUSIONS:

A critical review of the literature shows that ICS is a top-down system that employs a hierarchical organizational structure, much like the organizational chart for a business (NFA, 1988, p. SM 1-4; NIMS, 2008, p. 47). When a disaster or catastrophic event occurs, there is no instant command post set up, or even an indication of what scale of command system is needed—incidents do not wear signs with instructions. But as argued above, incident scope and complexity determine the command structure (NIMS, 2008, p. 47). The initial stages of a catastrophic incident are marked by random emergency calls and random acts of heroism on the part of responders and citizens. From the initial responses to these calls emerges a solution to the problem (NRF, 2008, p. 8; Comfort, 2007, p. 189). First responders are the eyes and ears of the later arriving UC personnel. They pass information and support needs up to a dispatcher or a higher-ranking officer who then overlays an appropriate, scalable and flexible organization to fit the dynamic situation found at the scene. From this base of response, responders must build a command structure or structures appropriate for the disaster throughout the "life" of the event. The contention in this thesis is that, during the initial stages of a response, ICS is not a top-down management system. Rather, it is more like a bottom-up, or self organizing system that adheres to general goals due to the well-known common purposes of the responders. This thesis will show that incident success is more likely when command personnel acknowledge the "bottom-up," or self-organizing system that naturally occurs during the initial stages. Once commanders acknowledge this portion of the response, they can take it into account as part of their planning for the sustained response. It is the IC/UCs job to support these efforts while developing an action plan for a sustained response. Further, the thesis will show how this bottom up response is the natural state for first responders, and that it fits current ICS conventions.

One of the virtues of ICS has been that it could be used at any type or complexity of incident (NFA, 1988, p. xi; Christen et al., 2001, p. 1) (OKC, 1995, p. B-176; NIMS, 2008). In recent years, there has been a shift away from "real world ICS" that the former ICS manuals referred to (NFA, 1990; NIMS, 2008). Daily practitioners of ICS know how to apply ICS to "normal" incidents, those which occur with some regularity. Most, if not

all of these incidents are handled with local or regional resources (ICS-300 SM, 2005, pp. 2–23). They use an organization that addresses the individuality and locality of the incident.

There is an often misunderstood concept in the ICS; the idea that there is one IC/UC for a disaster or catastrophic incident. In reality, there may be a varying number of commands at any point in time. These commands are supported by one or more Multi-Agency Coordination Systems (MACS), such as Emergency Operations Centers (ICS-400, 2008). The job of MACS is to coordinate with each other as a network of systems (ICS-400, 2008).

When one considers that a network of responders has the ability to self-organize into an effective initial effort, one must also consider that their effort considers the individuality and locality of the situation. Such a network is adaptable and flexible in a way that a "top-down" organization cannot be (Harrald, 2006, p. 270). Earlier ICS manuals emphasized the need for flexibility in implementation; however, more recent NIMS documents do not share this emphasis (ICS, 1988; NIMS, 2008). The 2008 version of the NRF states that "Incidents start local and end local." Further, the NRF emphasizes flexibility in many areas of the text, suggesting more of a framework for incident management than a procedure. This thesis suggests that there is a disconnect in the intent of incident management as a whole, and the current ethos and teachings surrounding ICS and NIMS.

One of the weaknesses of ICS in years past was that it was construed as a fire service system (Cole 2000, pp. 209–210; Hannestad 2005, p. 23). In many cases, it became an issue when the main players: Fire, Law Enforcement, and EMS were not working together. Pertinent to this thesis is the concept that the pendulum has swung far to the side of inclusiveness in UC. After the 9/11 attacks, American policy makers

dedicated massive resources to implementing the new NIMS.[27] Part of the federal grant structure for response agencies changed to include requirements for NIMS compliance. Since then, there has been a tremendous surge in the number of personnel from varied types of organizations trained in the National Incident Management System. NIMS and the NRF provide the framework for coordination and cooperation among various governmental, nongovernmental, and private organizations. This is the crux of the reason for training so many nontraditional responders, such as nongovernmental and private organizations. Familiarizing these parties with NIMS and the NRF will facilitate implementation. Important in this thesis is the concept that the pendulum has swung far to the side of inclusiveness in UC. This is significant because it directly affects the implementation of a UC or an EOC, and hence, affects the success of ICS.

There is a correlation between management failures in disasters and unwillingness or an inability on the part of managers to take advantage of strategic frameworks for success, which are often contained in the ICS. Several factors contribute to this issue. The first is a failure on the part of administrators, educators, and responders to recognize the differences in the management approach needed in the initial stages of a disaster, as opposed to the traditional top-down model of managing the sustained response to long-term incidents. A second factor is that the adoption of ICS as part of the National Incident Management System (NIMS) has exacerbated this unwillingness through a real or perceived loss of local autonomy and flexibility. Third, in the transition to "All-Hazard" ICS, there has developed an atmosphere of over-inclusiveness regarding members of the UC.

[27] According to the Government Accountability Office, "From fiscal years 2002 through 2011, the federal government appropriated over $37 billion to the Department of Homeland Security's (DHS) preparedness grant programs to enhance the capabilities of state and local governments to prevent, protect against, respond to, and recover from terrorist attacks. DHS allocated $20.3 billion of this funding to grant recipients through four of the largest preparedness grant programs—the State Homeland Security Program, the Urban Areas Security Initiative, the Port Security Grant Program, and the Transit Security Grant Program. The Post-Katrina Emergency Management Reform Act of 2006 requires the Federal Emergency Management Agency (FEMA) to develop a national preparedness system and assess preparedness capabilities—capabilities needed to respond effectively to disasters." (GAO, 2012, p. 2).

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III. DISCUSSION OF POLICY OPTION A—ACKNOWLEDGING THE BOTTOM-UP RESPONSE WHEN IMPLEMENTING ICS?

> *Beware of the individual that says, 'Don't do anything until I get there!'*
> –Alan V. Brunacini, Fire Command, 1985

> *It is not more command and control that we are after. Instead, we seek to decrease the amount of command and control that we need.* (U.S. Marine Corps, 1996, p. 110 in Moody, 2010, p. 17)

A. RECOMMENDATION

Acknowledge the bottom-up response that occurs when implementing ICS at major incidents: Modify ICS and NIMS training and implementation to change the ethos of ICS from a top-down system to a bottom-up system during the initial stages of a major incident. Emphasize the importance of the phase of major incidents that begins with its occurrence and ends with the beginning of the first operational period.[28]

B. DISCUSSION AND ANALYSIS

This option proposes a revision to NIMS and ICS education and training representing a paradigm shift from a top-down system to a bottom-up system during the initial stages of the response. Currently, the emphasis is on establishing a top-down organization that has command and control of the incident. Additionally, a substantial focus is on activities performed by an incident management team[29] (IMT). This top-down approach, when combined with teaching ICS to responders who do not use ICS for daily operations, has resulted in a lack of awareness of the nature of the initial response—a

[28] NIMS/ICS Operational Period: "The time scheduled for executing a given set of operation actions, as specified in the Incident Action Plan. Operational periods can be of various lengths, although usually they last 12 to 24 hours."

[29] IMT* in this sense is referring to full staffing of the ICS overhead organization. Per NIMS, 2008, "An IMT is an incident command organization made up of the Command and General Staff members and other appropriate personnel in an ICS organization and can be deployed or activated, as needed."

The General Staff is: Command, Planning, Operations, Logistics, and Finance. The Command Staff is the Safety Officer, Liaison Officer, and Public Information Officer.

*The above definition is somewhat different than the recent thought of an IMT. They recently become known to many as a designated group of specific individuals, a designated "State" IMT, or other variation based on those who have been credentialed as such.

diminishing of the art of the IC. Daily practitioners, such as police officers and firefighters, are keenly aware of this stage because it is their normal operating environment. They are “first” or initial responders. This critical period is when most victims are saved and most property is protected (O'Leary 2004, pp. 350–351). In law enforcement incidents, this is the critical time where fast action saves lives (Moody 2010, p. 2). Thus, ICS should be modified to recognize this phase of the incident and spend more time preparing all responders to deal with the difficulties encountered in the initial stages. The underlying lesson plans and curriculum should be adjusted to recognize and address the initial stages and the emerging part of the response to disasters and catastrophic incidents. The results will help prevent the consequences seen with management failures in the past, as well as provide for a better transition to an IMT at a later stage.

ICS has foundations in both business management and military doctrines. Both make use of a traditional scalar, hierarchical organizational chart (See Appendix B) (Molino, 2006, p. 2; ICS, 1988, pp. 1–3; Morgan in Buck et al., 2006, p. 1). Among the traditional management principles are planning, directing, organizing, coordinating, communicating, delegating, and evaluating (ICS, 1988, pp. 1–3). Military doctrine contributes the concepts of command, control, coordination, and communications, known as “C4” (Molino, 2006, p. 2). Together, these principles emphasize the ethos that the IC/UC is the source of all orders that equate to action.

The concepts mentioned above are popularly accepted and have led to many ICS successes. However, when one looks at one of the most difficult and chaotic phases of an emergency response, the initial stages, the traditional top-down view of ICS may not fit what is actually happening (Drabek & McEntire, pp. 200–203). The initial stage of a response is the time from occurrence to the point when an IMT begins managing the incident in specified operational periods based on an incident action plan (IAP). Formal operational periods mark the beginning of the sustained response. There is no set time to the initial stage. It may be minutes or hours, but it can be days in some circumstances. In ICS terms and conventions, the initial stage time is the period from occurrence until responders form a command organization that moves graphically off of the leg of a model

called the “Planning P” and begins operating in a cycle represented by the circular or top portion of the “Planning P” (See Figure 4). Once this cycle begins, it repeats continuously until the command is terminated. In each cycle, the present command prepares an IAP for the on-coming command members. This is the part of ICS to which the position specific checklists found throughout the ICS and NIMS literature apply.

The initial response is critical. If responders cannot adapt and manage during this portion, it can delay moving to the sustained response, as well as cost precious time and resources. In the initial stages, the emphasis should not be as much on control as it should be on coordination and support (Drabek & McEntire, 2002, p. 199, 215; Harrald, 2006, p. 260).

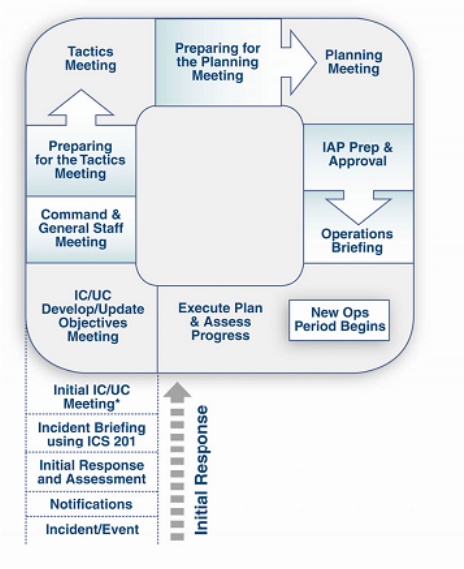

Figure 4. The Planning P (From NIMS, 2008, p. 123)

ICS was developed as a model system. The organizational chart in Figure 4 is a graphical representation of the ICS. This is the ICS that most learn. The model does not show ICS in action. It does not show the emergent or self-organizing portion of a disaster or catastrophic incident. It does not show a UC. It does not show any of the advanced command options. It does not account for the human elements of trust and relationships.

The model is a simplified way of expressing the system on paper. If this is the picture of ICS known by many, is it possible that the perception of ICS and the actual needs of the incident are different?

This thesis supports the concept that ICS has been oversimplified to the masses resulting in a potential for misapplication of ICS concepts. In other words, because the initial stages of an incident are not emphasized in the most basic ICS training, responders could easily end up trying to apply concepts in the initial stages, which are better suited for setting up a sustained command. This is especially true because these concepts are the ones emphasized most in the ICS course. Specifically, the concepts to which the author is referring are those; such as the use of IMTs, full command and general staff implementation, and an emphasis on the sustained response. An analysis of ICS 200, Single Resources and Initial Action Incidents, shows that substantially the same basic constructs are taught in this course as are taught throughout other ICS courses[30] (ICS 200, 2005). It is not teaching responders how to operate in the initial stages as the name implies.

Even among practitioners and experts there are misunderstandings about the initial stages (Buck et al., 2006, p. 4). This is supported by Buck, Trainor, and Aguirre who suggest that applying the ICS model to an event with the magnitude of Hurricane Katrina reveals that it does not work well in certain phases of response efforts for events that have not been encountered before. They found that:

> Many social demands produced by disasters are too complex and unexpected to be handled by ICS. The command and control model does not currently, and given the social complexity, likely never will work for all phases of disaster operations. The federal government's hopes to apply NIMS to all phases of disaster operation are misguided. (Wenger et al. in Buck et al., 2006, p. 21)

Another author, who has written about the initial stages, describes the misapplications that exist:

[30] For example, ICS-100: Introduction to the Incident Command, ICS-300: Intermediate ICS, ICS-400: Advanced ICS, IS-700: National Incident Management System (NIMS), An Introduction.

> Is event response really as simple as arriving, pulling out the NIMS checklists for the various positions and then starting to go down the list of "items to do"? Would that have worked at the Twin Towers on 9/11? Did it work in the nationwide response to Hurricane Katrina? While those checklists are invaluable once a situation has moved into the Cynefin arena of "complicated," they are not the proper tool to apply in the initial, chaotic phase of event response. (Renaud, 2010, p. 68)

Renaud is correct. The position specific checklists are not the answer to a dynamic and chaotic environment. In the context of the current ICS courses, the checklists are not for the initial stages. They are for the IMT. This quote shows, however, that there are those who would suggest that the opposite is true. The opposite being that there are those who have the understanding that the key to managing any incident is to do exactly that—show up and start working on the checklists. The author's experience has shown that there are people teaching this, and students who are being led to believe this. Further, an analysis of ICS 200[31] and ICS 300[32] show that there is definitely not a concerted effort to teach responders how to operate in the initial stages or how to actually make the transfer to an IMT. Both courses briefly address the initial response and the transfer of command to the sustained response, but it is done in the context of using a top-down organization in the initial stages. The courses do not account for the chaos in the initial stages.

ICS can be used for incidents[33] or events[34]. In the context of this section, the author is primarily speaking of incidents. The difference between incidents and events is primarily when the response occurs. For example, a training exercise is an event. The response and organization occurs after the IC knows about the occurrence. With an incident, the IC may know about a looming hurricane, tornado, or flood, but he or she

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[31] ICS-200, Basic ICS, Single Resources and Initial Actions.

[32] ICS-300, Intermediate ICS.

[33] Incident, An occurrence, natural or manmade, that requires a response to protect life or property. Incidents can, for example, include major disasters, emergencies, terrorist attacks, terrorist threats, civil unrest, wildland and urban fires, floods, hazardous materials spills, nuclear accidents, aircraft accidents, earthquakes, hurricanes, tornadoes, tropical storms, tsunamis, war-related disasters, public health and medical emergencies, and other occurrences requiring an emergency response. (NIMS, 2008, p. 140).

[34] Event, See Planned Event. Planned Event: A scheduled nonemergency activity (e.g., sporting event, concert, parade, etc.). (NIMS, 2008, p. 144).

does not know exactly where and when the initial response(s) will occur. It is a difference of the speed at which the IC must make decisions and the flow, quality, and amount of information the IC will have access to (NIMS, 2008, pp. 139–140).

A 2010 CHDS thesis by Cynthia Renaud explored the application of a framework, called the Cynefin (See Figure 5) framework, to the initial stages of an incident. One of the weaknesses of ICS according to Renaud was its inability to address the initial stages of an incident (Renaud, 2010, p. xiii). Renaud stated that, "While NIMS and ICS are very effective at structuring and organizing multiple response efforts in a stable environment, they are not an effective tool first responders can use during the initial phase of chaos inherent in every unstable large-scale event (Renaud, 2010, pp. 24–25)." Specifically, she explored a concept called the "edge of chaos," which is the transition from a chaotic environment, such as the initial stages of a massive incident to an environment where the IC or UC would feel that they have the incident under some sort of control. Her thesis suggested that there were certain individuals who were more capable than others to do this. She suggested that these individuals should be discovered and trained for this task (Renaud, 2010, p. 45). Renaud envisioned the framework as a way to discern certain leaders and further their training.

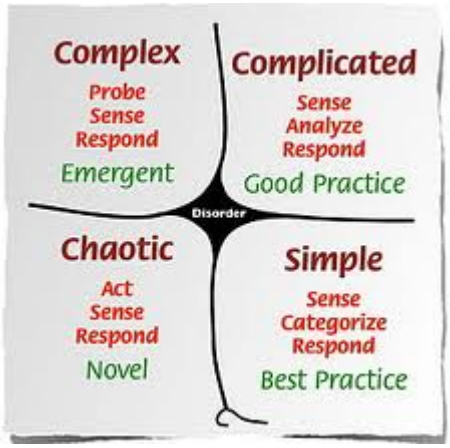

Figure 5. The Cynefin Framework (From *Wikipedia* at http://en.wikipedia.org/wiki/Cynefin)

While not quite the same as the thesis here, much of the basis is the same. The author believes it important to first acknowledge the work done by Renaud. The author agrees with Renaud's work in many areas. Further, the author finds it important to differentiate what is being said here from that of Renaud. Renaud's work focused on a framework that could be used by a person. Further, her work indicated training people who were found to be the type of person that could step up and be the leader in these extreme circumstances. This thesis focuses on a change in the ethos across all responders. It would have all responders trained to expect what happens early in disasters and catastrophic incidents and give them certain guidelines to follow that would assist the IC/UC in coordinating the initial response and transitioning to an IMT. Further, this thesis discusses the specific ways that ICs/UCs might go about transitioning from the initial stages to an IMT. Once responders, administrators, and politicians recognize the initial chaos as a normal or a natural part of an incident, they can move past the fact that it is chaotic and begin to fix it when the time is appropriate. Responders, administrators, and politicians alike must remember - that mess is saving people's lives and property.

Renaud's application of the Cynefin Framework to ICS and emergency response can yield a basis for recommendations here, as well as an understanding of how humans act when faced with certain situations. When faced with a chaotic environment, such as the events of 9/11 or another catastrophic incident, the Cynefin framework tells us:

> This is the realm of unknowables. In the chaotic domain, a leader's immediate job is not to discover patterns but to stanch the bleeding. A leader must first act to establish order, then sense where stability is present and from where it is absent, and then respond by working to transform the situation from chaos to complexity. (Snowden & Boone, 2007, pp. 5–6)

The chaotic realm speaks to the emergence of the response, or the bottom-up organization that occurs in a disaster. This is the natural state, for responders (Moody, 2010, p. 50). When faced with chaos, they act on understanding of general goals or priorities. This is consistent with the ICS priorities: 1) Life safety, 2) Incident stabilization, and 3) Property conservation (ICS-300 SM, 2008, pp. 3–24). The ultimate

goal is to merge the initial actions of first responders together with an accurate damage assessment. Then, the UC can begin to layer in an organization that will form the basis of the sustained response.

There is a push-pull relationship however. The current ICS paradigm is in conflict with the actions that responders know that they need to do in the initial stages. In a true top-down system, responders are not supposed to act until assigned a task by the IC. This creates a push-pull in the minds of many responders. They see what needs done. They know how to take care of it. They know they need to act fast, but they are not supposed to. Further, this conflict can give members of the incident command or UC the wrong impression. They are expecting to step in and command a response as opposed to coordinate an emergent response.

What is actually an emergent organization is often seen as disorganization or unorder. Responders, such as police officers and firefighters, are trained to operate without the need for intense supervision (Moody 2010, p. 53). According to Krulak (in Moody), they are trained to operate "far from the flagpole (1999, p. 16; 2010, p. 53). In the words of the United States Marine Corp manual, *Command and Control*, "it is not more command and control that we are after. Instead, we seek to decrease the amount of command and control that we need (1996, p. 110 in Moody, 2010, p. 53)." Responders know what to do. Command must support their efforts to perform in the initial stages and "loosely influence field resources in a fashion that is 'more akin to the willing cooperation of a basketball team' than to the "omnipotent direction of the chess player" (USMC 1996, p. 42 in Moody, 2010, p. 17).

Decker concurs with one of the author's main tenants, the need for self-organization and emergence in the initial stages of a catastrophic event. His work lends credence to the weakness of the top-down approach that most practitioners use when implementing ICS:

> The problem with this top-down approach is that it violates two basic features of biological (and many physiochemical) phenomena:

> individuality and locality. ….The tenet of locality means that every event or interaction has some location and some range of effect [Kawata & Toquenaga, 1994]…To say that a system is self-organized is to say it is not entirely directed by top-down rules, although there might be global constraints on the system. Instead, the local actions and interactions of individuals generate ordered structures at higher levels with recognizable dynamics. Since the origins of order in SOS are the subtle differences among components and the interactions among them, system dynamics cannot usually be understood by decomposing the system into its constituent parts. (Decker, 2001, p. 3)

The missing component and challenge for would-be ICs who are moving to establish an overall organization for a catastrophic incident is to support the emergence and improvisation of responders during the initial stages while at the same time layering in an organization that provides a support structure and gives objectives and sensible bounds. Harrald, 2006, agrees with this overall concept:

> The initial response is conducted by resources on the ground reacting to the situation created by the event, while external resources are mobilized. An integration phase is required to structure these resources into a functioning organization capable of identifying needs and providing services that are beyond the capability and capacity of the early responders. If the mobilization and integration are successful, a production phase is reached where the response organization is fully productive, delivering needed services as a matter of routine. (p. 260)

As stated earlier, ICS has shown to be effective in a variety of incidents. The often untold story is that in each of these incidents there was an initial and emergent response until the overhead staff could be set up and gather enough information to operate. For example, during the response to the Oklahoma City bombing the command personnel from the Oklahoma City Fire Department acknowledged that they did not have control of the incident during the first forty-five minutes when a threat of a secondary device occurred. Then, they pulled all responders out of the building and had the opportunity to regroup. This provided a break in the incident, so that the UC could be established (OKC, 1996, p. 25). The UC then imposed an organization that was the basis of the rest of the incident. It was during this first forty-five minutes; however, that the preponderance of rescues was made and care was given (OKC, 1996). The response to the Pentagon on 9/11 is another ICS success story (National Commission on Terrorist

Attacks, 2004, pp. 314–315). Again, there was a tremendous emergent response, in spite of the control and accountability that inherently occurs as a result of responding to a secure location, such as the Pentagon (Moynihan, 2007, p. 18).

Drabek and McEntire address emergence:

> …disaster sociologists have repeatedly questioned the value of the bureaucratic model (Britton 1989a, p. 15; Drabek 1987, p. 290). They recognize that disaster foster emergent norms (Neal and Phillips 1995, p. 329), that emergence is not an aberration (Wenger 192, p. 10, 12), that emergent behavior cannot be stopped (Neal and Phillips1995, p. 334) that emergent activity fills a void as a resource (Mileti 1989, p. 66) and not a liability. (Wenger 1992, pp. 10–12, 2002, p. 203)
>
> The emergent behavior and norm approach to emergency management is also beneficial in that it illustrates that there is more than one way to organize (Britton 1989a, p. 15), that there is order even in chaos (Koehler 1996; Mileti 1989, p. 63), that existing social structure is effective (Dynes 1994, p. 149), and that there is continuity before and after disaster (Dynes 1994, 2002, p. 203)

When a catastrophic incident occurs, it does not wear a sign that says this is a "Type X" incident, and it needs this type of organization and response (NRF 2008, p. 8) (Comfort 2007, p. 189). It may occur as an immense series of individual calls for assistance, or a scattered response. The incident is very dynamic at this point and minutes mean the difference between life and death. Individual resources focus on taking direct actions to resolve situations that they are responding to or happen upon—situations that responders cannot and will not pass. This portion of an incident is often anything but resembling a command and control environment. Resources are scattered and possibly physically separated. Communications, which may already be poor, may also be hampered by damage to infrastructure. In extreme cases, as found in New Orleans after Hurricane Katrina, communication capabilities were all but nonexistent (Moynihan, 2007, p. 19).

The process of bringing "order out of chaos"[35] is a tough one. The dilemma lies in that each of the resources is doing good things. Stopping their work to regroup may

[35] As a side note, "Order Out of Chaos" was a the name of an early (ca. 1990) video tape that was part of the National Fire Academy ICS Curriculum.

cost lives or property. But, stopping and reorganizing may save more in the long run—and enhance safety. It is difficult to know which is right. This is a push-pull dilemma that happens on both sides—the responders and the UC. For an IC and other officials to let a chaotic response continue can be political suicide. Responders are trained to fix things. One side needs to get information and form an organization, and the other side is taking action to save lives. All too often, the failure of command occurs due to a command and control attitude on the part of agency leaders and agency administrators. In some cases, the question of "who's in charge?" becomes a point of contention and argument. It can also be an issue if the current IC or unified commander cannot give the right answers to administrators and politicians. A scenario such as this, which could quickly become a human resource issue, can further drive the feeling in the UC to "get control" of the situation.

With the description of the initial response above, the development of a top-down ICS is ineffective. The inexperienced IC and/or an IC who is an ICS "purist" will try to force command (top-down) over this situation (Drabek & McEntire, 2002, p. 203). The astute IC will lead what is already occurring and support their efforts (bottom-up) while preparing to layer in an overhead organization (Drabek & McEntire, 2002, p. 215).

Assuming that a UC is in place, or a delegation of command has occurred to one person, how does an IC go about building a bottom-up response? ICS courses, in their current state, do not adequately address this. They speak of ICS as a top-down system that starts with an IC. In a sense, that is correct. There is technically an IC at each location—someone is in charge of each action responders take, even if it is only one responder. To begin layering in an organization over current operating forces, the IC must perform an assessment. This assessment must include a "best guess" inventory of current operating forces and a very limited description of the functions and tasks they are performing. There will be resources operating that an IC may not know about. The IC/UC may even have to send runners to find out what units are even there. From experience, the author will note that they all have to come up for air at some time. Even the sneakiest first responders will need water, food, or fuel at some point. As they are contacted or discovered, the IC can include them. Then, the IC develops an organization based either

geographically or functionally on the operating forces. Through multiple iterations, the assessment and inventory will become more accurate. It is important to note that the purpose at this stage is not to command resources, but rather to coordinate, support, and provide for their safety.

Along with the IC's assessment of the current operating and responding forces, he or she must also account for any other known objectives or tasks that need accomplished and take these into account when building an organization. There will always be more objectives and tasks than the IC can accomplish simultaneously. The IC goes through a process of prioritization based on the standard incident priorities of 1) life safety, 2) incident stabilization, and 3) property conservation.

The damage assessment and development of objectives may take some time. During this period, the IC can build the organization using the resources already operating and those responding. The IC may also begin to realize the resources he or she will need, and he/she can order those resources at this time. Developing an organization from already operating forces consists of determining the type of command template the IC/unified commander will use. The key here is the IC/UC works through the list of resources and their current status. From this, the IC/UC uses ICS conventions to build an organizational chart starting with the bottom of the chart, as opposed to starting with the top. The span of control and perceived extent of the incident will dictate the organization; the organization must emerge out of the situation.

As each resource is put into ICS assignments, they must be notified, so they may begin using the chain of command, and so the organization maintains unity of command. Depending on the communications and interoperability capabilities, it may take radio messages, mobile phone calls, or even sending runners to make assignment communications, as well as gain status reports. Prior ICS training is critical for this to work, so that when an assignment is made, each person knows what that means in terms of taking action, reporting through the chain of command, and documenting their actions. The intent is to have a perfectly running organization, but it cannot always happen. It is not like a TV episode where everything works out…it is not like sitting in a classroom and doing scenarios.

Operating in a bottom-up mode takes trust and flexibility. Moynihan concurs that trust is essential in facilitating coordination (Moynihan 2008, pp. 218–219). Subsequently, as the organization evolves from a bottom-up, or more open style, of organization to a more scalar, hierarchical organization, the need for trust diminishes (Moynihan, 2008, p. 219). Since the initial stages of disasters and catastrophic incidents are marked by chaos, the IC must have blind trust in order to make critical assignments to resources and people with which he/she may have no prior association.

Flexibility is key to ICS in general, but especially when operating in the bottom-up mode. Flexibility will be addressed in Chapter IV, Policy Option C. It is important to note here that during the initial stages IC may have to come up with "out-of-the-box" solutions to complex problems, even though those solutions do not always fit the "normal" ICS conventions. One example of this was during the Oklahoma City bombing. In a 1996 presentation by Fire Chief Gary Marrs, he discussed the scenario. The city of Oklahoma City was most concerned with rescue. The FBI had a tremendous stake in the crime scene. When all was said and done, they created two commands: One for the search and rescue effort, lead by Oklahoma City; and one for the crime scene, led by the FBI. This organization was set up very early in the incident, and it was not a contentious move. Rather, it was an operational move. The separate commands worked together. Chief Marrs discussed that they did not do it exactly by the book, but it worked.

C. POLICY OPTION A—CONCLUSION

Policy Option A—Acknowledge the bottom-up response that occurs when implementing ICS at major incidents: Modify ICS and NIMS training and implementation to change the ethos of ICS from a top-down system to a bottom-up system during the initial stages of a major incident. Emphasize the importance of the phase of major incidents that begins with its occurrence and ends with the beginning of the first operational period

ICS refers to itself as a "top-down" system of management where objectives are orchestrated by a traditional, scalar command structure (NIMS, 2008). ICS should be modified to recognize the initial stages of catastrophic incidents and disasters. Incident

management success is more likely when command personnel acknowledge the “bottom-up,” or self-organizing system that naturally occurs during the initial stages. The underlying lesson plans and curriculum should be adjusted to recognize and address the initial stages and the emerging part of the response to disasters and catastrophic incidents. This critical period is when most victims are saved and most property is protected. Once commanders acknowledge this portion of the response, they can take it into account as part of their planning for the sustained response. It is the IC/UCs job to support the efforts of responders in the initial stages while developing an action plan for a sustained response. The results of this recommendation will help prevent the consequences seen with management failures in the past, as well as provide for a better transition to an IMT at later stages of an incident.

IV. POLICY OPTION B –FLEXIBILITY IN ICS: EMPHASIZE INDIVIDUALITY AND LOCALITY

> *Fellas, you know what the definition of an expert is? Someone fifty miles away from home carrying a briefcase*. –Wayne Lehew, ca. 1994
>
> *When you wake up groggy from your cot one morning and step into the command trailer, almost running into the governor…then you step outside for a cup of coffee and the President Pro-Tempore of the State Senate is asking you pointed questions – you'll realize real quick that ICS needs to be flexible and account for individual and local circumstances. They don't care if you call the truck full of water a "tanker" or "tender*." –Author

A. RECOMMENDATION

Emphasize the ethos of flexibility in ICS application, considering the concepts of individuality and locality in incident response frameworks.

B. DISCUSSION AND ANALYSIS

The National Fire Academy in Emmitsburg, Maryland, began teaching the ICS as a nation-wide system in 1983 (Cole, 2000, p. 209). Although there was some participation from other first response agencies, prior to 9/11, ICS was primarily a fire service tool (Cole, 2000, pp. 209–210; Jensen, 2010, pp. 18–19; Hannestad, 2005, p. 19). Certainly, it was not a nationwide phenomenon, as it is today. Local emergency managers and many law enforcement agencies followed the fire service (Hannestad, 2005, pp. 19–20; Cole, 2000, pp. 209–210).

In response to firefighter deaths and injuries, the National Fire Protection Association (NFPA) issued the first edition of *NFPA 1500, Standard on Fire Department Occupational Health and Safety Programs* in 1987. (NFPA, 1987). NFPA 1500 recommendations stimulated sweeping safety changes in the fire service. Among these

changes was the use of an incident management system for all incidents[36] (NFPA, 1987). This was stated in NFPA 1500 and in the ICS Texts of that era. Not only was flexibility a requirement, it was a selling point.

During the early years of proliferation across the nation, ICS implementation was met with resistance[37] from much of nation's fire service. Many fire chiefs in that era (as well as firefighters) came on the job during the days when the fire service ran on the principle of "he who yells the loudest is in charge of the fire scene." ICS was a hard sell for these folks. The author remembers many of their comments. "You can't fight fire with a clipboard," "We don't have enough people to leave someone in the command post be in-charge—everybody has to work…," "We don't have enough people to fill all of those boxes," and a multitude of others. An emphasis on flexibility was key in showing that using ICS did not always mean using every position on the standard chart shown in the slides and text. ICS was supposed to fit the incident, the incident was not supposed to fit ICS. ICS was to consider the individuality and locality of the incident. Harrald, 2006, states "Comfort has shown (1999) that the creative ability of response organizations to become adaptive networks has been a notable factor in determining the relative success of response and relief operations (Harrald, 2006, p. 265)." One of the most basic requirements of an incident management system is that it be flexible (Dynes 1994, p. 149; Neal & Phillips 1995, p. 328 in Drabek & McEntire, 2002, p. 204).

One of the terms in the original NFA ICS manuals was "Real World ICS." The course took students through the process of setting up a command for several everyday incidents. It showed them how to form a simple organizational structure that addressed the needs of the incident. These scenarios taught many firefighters the foundation of ICS. The need for "Real World ICS" still applies today. According to Moynihan, 2007, "An after-action review of the Pentagon attack on 9/11 highlights the need for research to 'incorporate real world experiences drawn from such events as Oklahoma City, the World Trade Center, and the Pentagon' (p. 10)."

[36] As a rookie firefighter at the time, the author distinctly remembers that era. It was when firefighters had to stop riding tailboards of fire trucks, wear bunker pants instead of fold down rubber boots, and start using ICS.

[37] This is putting it very nicely.

In today's world where responders take their building block ICS courses by reading repurposed PowerPoint slides on a computer screen, (instead of learning from a real, live, experienced instructor) the emphasis on ICS flexibility is missing. There is still a version of ICS "for the Fire Service," but event in this course, the section on "Real World ICS" is gone. The little discussion of flexibility that does exist in ICS courses refers to scalability. Harrald, 2006, concurs "Since its creation in 2002, the DHS has focused on increasing the discipline in the national system through an extensive development of doctrine, process, and structure and has neglected fostering the agility (creativity, adaptability, improvisation) that has historically been the key to success (p. 270)." Harrald further states,

> Dynes (1994, 2000) demonstrated that the assumptions inherent in closed system, command and control organizational models have been absent in the aftermath of almost all natural and technological disasters. The closed system model (which Dynes termed the "military model") assumes environmental chaos and the need for command, control, and centralized decision making. The open-system, problem-solving model assumes an environment that supports continuity and recovery and a need for coordination, cooperation, and decentralized decision making. Other researchers have noted that structured planning and organization were only effective if the ability to improvise is preserved. (2006, p. 264)

There seems to be good discussion in the NRF, NIMS, and ICS about scalability. Scalability is tied to the "modular organization" property of ICS. Modular organization is the ability to grow or shrink by adding standardized components of the system. Flexibility in the context of this thesis is not so much referring to scalability, but rather flexibility in the sense of adaptation and improvisation. In Chapter II, Literature Review, Harrald's Organizational Typology of Response Organizations referred to an organizational type called a "Balanced/Adaptive" organization (Harrald, 2006, p. 268). "Balanced/Adaptive" systems have the strengths of a "Bureaucratic/Procedural" organization, but they differ in that they have the ability to rapidly adjust to circumstances and other coordinating organizations (Harrald, 2006, p. 268). NIMS has shown to be more of a "Bureaucratic/Procedural" policy according to Harrald's typology (Harrald, 2006, p. 268).

By flexibility, this document is referring to the local jurisdiction's ability to forge an overhead organization around a dynamic operation. Flexibility in this context refers to the emphasis on discretion in developing a structure that addresses each incident individually. Students of ICS should be taught that there is no "pure" ICS. Hence, the two properties discussed by this thesis—individuality and locality. Chapter II, Literature Review, discussed the bottom-up response that occurs in the initial stages of a disaster or catastrophic incident. Included in this discussion was the concept of SOSs. Two tenants of SOSs are individuality and locality (Decker, 2001, p. 2). It is the author's contention that addressing these two tenants of SOSs through flexibility will encourage the self-organization of the incident response, thereby, easing the transition from the initial stages of an incident to the sustained response.

Each locality and jurisdiction is unique. In today's ICS courses, there seems to be more emphasis on the charts, forms, and checklists than there is on implementing a useful and local command. Flexibility, in this case, is not referring to purging the ICS manuals of any concepts. Instead, the author's contention is that there needs to be an emphasis, understanding, and expectation that ICS will not always easily fit what responders need to accomplish. Hence, it should not be a sticking point in keeping them from doing what they need to do.

It seems that today we have come to a push-pull relationship in ICS and NIMS. It is a common impression that when ICS is implemented, people and organizations become robotic in nature, executing orders and functions at the will of the IC. In a sense, ICS is a command and control system. It is more than that, however. The push-pull that occurs when field units are working is that they feel they cannot do anything without being told, even though they may see and know what to do. A second push-pull relationship occurs when an IC is compelled to stand-up management assignments in the organization when he/she does not need them. For instance, in the early stages of a disaster, when bodies are short, an IC may feel compelled to set up a finance section or a logistics section, but he/she really does not need one. No money is changing hands, logistics are handled through normal dispatching and supply procedures for his/her organization. The IC can

handle these functions by him or herself. But, all of the ICS courses, all of the scenarios, have lent themselves, or pushed students to full section implementation.

One of the cliché sayings in incident management is "all incidents start local and end local." Local people know the local nuances. They know the people. They know the terrain. The fact that there is a national system does not mean adjoining jurisdictions get along, or ever will. Forster found the failure to harvest local knowledge to be a key failure point in the response to the Beslan, North Ossetia (Russia) School hostage situation:

> At Beslan, local assistance and expertise was disregarded. To be effective security forces need to be cognizant that, as in combat, terrorist situations have a "fog of war" surrounding them. Effective use of intelligence is needed to lift the "fog" to the greatest extent possible. This is accomplished by utilizing all available resources. Local resources can be particularly valuable in data fusion because they are familiar with the environment. Furthermore, effective incident command requires flexibility in the planning and execution of operations, not only to respond to unexpected events at the incident but also to achieve a level of control ensuring official actions are not overtaken by outside events (as occurred with the vigilantism at Beslan). Finally, lessons learned at the tactical level may be applied to prevention as well as response. "All response is local" is the mantra of American emergency response. (2006, p. 6)

The question the author raises here is do we need to provide a framework that assists the local jurisdiction, or do we need to control how local jurisdictions are doing their job? Put bluntly, is NIMS overshadowing the real need? If that is the case, we are ICSing our way out of their hearts.

The American emergency response community is a very diverse group. The United States has a very pluralistic government. Further, we have an interwoven mix of agencies and jurisdictions. As put by Morag (2011), "While we may view the above policy areas as constituting the field of Homeland Security in the United States, one would be hard-pressed to find any similar amalgamation of what would appear to be disparate policy domains in the rest of the world (p. 12)." There is no central authority that dictates the make-up of United States first responder organizations. Even within disciplines; such as fire, police, emergency medical services, there is no true

standardization. For example, the emergency medical service is standardized in training by the National Registry of Emergency Medical Technicians, but there are states that do not participate or recognize reciprocity. Similar systems exist for police and fire. As far as equipment, there is no "standard" fire truck. There are standards, but there is not a "standard" one. They come in all shapes and sizes, and they may carry some or much of the same equipment. In general, they meet some of the same purposes or minimum requirements, but there are local and regional differences. These local and regional differences are deep rooted, and they may not be something that a fire or police chief can change. There are issues in funding, issues with labor contracts, and issues with what services a jurisdiction has decided to provide to their citizens. This is the part of ICS and NIMS where there just will not be consensus. Jensen, 2010, found similar results indicating that policy characteristics, implementer views, and local capacity were indicative of a jurisdiction's intended NIMS implementation behavior (p. 95). Further, she found that interorganizational characteristics were found to influence actual implementation behavior (Jensen, 2010, p. 95). These are the hang-up areas where jurisdictions are saying, "this just will not work here," or "we don't have that." Everyone cannot have unlimited personnel, satellite phones, hardened facilities, redundancy of systems, etc.; and providing a nonsustaining pot of money through a competitive grant process does not fund the NIMS mandates of standardization.

Cognition is one factor in flexibility. Comfort, 2007, found that cognition was one of several factors in successful crisis management:

> Cognition is the triggering insight of emerging risk that initiates the emergency response process. Without cognition, the other components of emergency management remain static or disconnected and, as shown by the record of operations during Hurricane Katrina, often lead to cumulative failure. The relation between cognition and action transforms emergency management from a static, rule-bound set of procedures into a dynamic process, one that is based on the human capacity to learn, innovate, and adapt to changing conditions, informed by timely, valid data. (Comfort, 2007, p. 189)

Comfort's findings tie together the concepts of cognition and flexibility, or the ability to adapt to the local conditions of the incident. Interestingly enough, the NRF makes a similar claim:

> It is not always obvious at the outset whether a seemingly minor event might be the initial phase of a larger, rapidly growing threat. The Framework incorporates standardized organizational structures that promote on-scene initiative, innovation, and sharing of essential resources drawn from all levels of government, NGOs, and the private sector. Response must be quickly scalable, flexible, and adaptable. (NRF, 2008, p. 8)

Hence, the recognition of a need(s), the adapting the organization to the need(s) is the crux of flexibility.

Beyond cognition, how does flexibility occur? One important aspect is local planning. The author contends that even as far back as the early days of ICS in the Fire Service; ICS has taken the place of preparedness for many organizations. The impression by many was that implementing ICS would solve any disaster that came their way. Kreps, however, states that "Without preparedness, emergency management loses clarity and efficiency in meeting external disaster related demands (1991, p. 33, in Harrald 2006, p. 264). He further indicates that preparedness and improvisation go hand in hand (Kreps 1991, p. 33, in Harrald 2006, p. 264). Hence, organizations must continue planning and preparedness efforts. Then, when disasters and catastrophic incidents occur, ICS is a tool that should allow the flexibility and improvisation needed. With ICS, organizations can execute the parts of their response plan that are applicable and adapt plans to the areas where they must react to a dynamic environment. Kreps adds, "Without improvisation, emergency management loses flexibility in the face of changing conditions (Kreps 1991, p. 33, in Harrald 2006, p. 264)." Further, according to Harrald, 2006, "Kendra and Wachtendorf (2002) saw improvisation as the combination of planning and creativity when meeting unexpected situations or unexpected constraints (p. 264)."

Planning leads to preparedness. Preparedness can be in the areas of hardware, personnel, and policies. Having plans, even general plans, is similar to having previous experiences in recognition primed decision making. Even though the previous

experience, or plan, may not fit the disaster or catastrophic incident, they can be drawn upon for certain aspects that fit the current situation. This is improvisation.

Authors recognize the need for planning, and that it does not impede flexibility. Mendonca et al., states:

> Activation of emergency plans is based upon assessment of the potential impacts of an accident and the courses of action needed to eliminate or at least mitigate this impact. These response plans can rarely be executed as expected, as the case of the Exxon Valdez accident showed [1]. Flexible approaches to emergency management are therefore required. Any such approach must be able to deal with an uncertain and changing environment and allow for revision of planned courses of action. Moreover, the approach must be able to support emergency managers in improvising when no standard operating procedure can alleviate the catastrophe. (Mendonca et al., p. 31)

One of the common areas where disaster plans are altered is the assignment of specific personnel to specific positions. Comfort concludes that,

> In actual events, personnel with assigned responsibilities may not be available, their capacity to act may be reduced by damaged infrastructure, or their resources and experience may be inadequate to respond to the conditions they face. The capacity for adaptation to a suddenly altered or rapidly changing environment is critical for effective performance. This capacity still depends on the critical functions of cognition, communication, coordination, and control, but it needs to be understood in a new way. (Comfort 2007, p. 193)

Therefore, effective planning considers these circumstances, and personnel are trained to expect and work through them.

Prior to 9/11, the fire service adapted ICS to all kinds of incidents. It was not a direct fit to every type of incident or responder discipline. Some significant incidents saw great success, others did not. ICS was not always the reason for these successes, nor was the lack of an ICS always the reason for failures. When an organization has experience in an area for a great deal of time, they learn how to adapt and make it work. One of the main issues with ICS; however, has been the fire service emphasis and the integration of nonfire agencies (Cole, 2000, p. 212). The author agrees that all pertinent agencies need to be integrated equally, but the point here is that maybe there is an opportunity to learn

from the fire service's experiences with twenty-five plus years of ICS use. In some areas, such as with some of the original FIRESCOPE agencies, their experience has been on the order of forty years. Moynihan concurs,

> Firefighters have extensive experience in the use of the ICS, albeit within the function of firefighting, and other emergency responders at all levels of government are just beginning to catch up, even as they consider how the ICS might be applied in different situations. Responders have scant careful analysis upon which to base such training. (2007, p. 10)

Since Homeland Security Presidential Directive-5 was issued, requiring a national incident management system, there has been a tremendous surge in the number of personnel from varied types of organizations trained in NIMS. Consider the environment where an organization has not embraced ICS, but is now required to implement ICS. At the same time, they are under the gun to get grant proposals submitted to get their piece of the hundreds of millions of dollars of newly found Homeland Security grant money. As part of the grant requirements, their whole organization, not just the fire or police department, but the preponderance of their local government must be "NIMS Compliant." The result is a massive training effort in a relatively short time. Many of the courses are online courses. In short, the focus has been on the training and checking the boxes versus ensuring a quality response. In this mix, flexibility has not been a key concept that has been taught. Compliance has been (Jensen, 2009, pp. 22–23). Jensen, 2010 concurs with the potential for the separation of complying with the NIMS training mandates and the actual knowledge level of the student:

> As Jensen (2009) determined in a recent study of NIMS, although the federal government attempts to monitor the progress local jurisdictions make toward complying with NIMS, its measures of compliance do not reflect the knowledge about NIMS of those involved, the commitment of those involved, their actual incorporation of NMS into their day-to-day activities, or how appropriate NIMS is for a given jurisdiction. (p. 22)

During training, the flexibility component can quickly be lost. This is a failure of the training curriculum to properly emphasize the modular organization—and thus flexible nature—of the system. Flexibility in this context does not mean changing the systems, rather allowing the modular system to fit the incident. A recent example of this

occurred in an L-449, *ICS Curricula Train-the-Trainer,* course taught by the Center for Domestic Preparedness in March of 2010. This was a course of seasoned response professionals. The instructor for the course, not an emergency responder, mentioned again and again, if it is not in the lesson plan, you cannot teach it. This was an obvious attempt to circumvent the minority of instructors who would modify the system; however, the atmosphere in the course was not one that emphasized that ICS is flexible. Rather, the air was one of "this is how the government says this will be done, and if you are going to teach this, you have to teach it this way." The fact that this instructor trainer was not a responder is an important issue being brought out by this section.

Experience does come in to play in flexibility. Experienced practitioners are able to draw on what worked and what did not work in the past. Lacking experience, an instructor or administrator has the policy to turn to for guidance. According to Comfort, 2007:

> Recognition-primed decision making (Klein, Orasanu, & Calderwood, 1993; Salas & Klein 2001) is now incorporated into many training programs for emergency personnel. Klein's concept of recognition-primed decision making acknowledges that, under threat, the process of reasoning through a linear set of instructions or rules is far too slow for human managers to avoid danger. Rather, he observed that experienced leaders draw on a repertoire of previous actions in similar conditions and create workable strategies to fit the existing context for action more appropriately. (2007, p. 191)

ICS and NIMS are heralded as being flexible (NFA, 1988, p. SM-18; NIMS 2008, p. 6). ICS is organized modularly and may be seen as flexible. Modular organization implies that portions of the system can be implemented as needed, and that only the parts that are needed will be used (NIMS, 2008, p. 47). According to FEMA,

> Flexibility and adaptability are ICS strengths that are frequently mentioned in the literature. For example, FEMA training materials point out that while the ICS concept was originally devised to address complex wildfire scenarios in California, it has subsequently proven flexible enough for managing any type of emergency, including floods, hurricanes, earthquakes, hazardous material releases, riots, and other natural and human-caused emergency incidents (1992). (Cole, 2000, pp. 211–212)

While the NRF supports the same concepts as authors who are calling for adaptation, innovation, improvisation, and other similar concepts, the NRF, NIMS, and ICS are considered by many as inflexible. Responders use ICS for a range of incidents. As a whole, ICS concepts fit what responders do. In the sense that ICS is scalable to fit the size of an incident, it is very flexible. However, in the area of being flexible as a policy, it is not. Therefore, policy implementation is another area where this thesis recommends an emphasis in flexibility.

ICS is meant to be a tool, not a burden. Jensen found that many county emergency managers used a pick and choose mentality when implementing NIMS (2010, p. 23). Some of the common areas that are sticking points are certain terms (such as "sector" and "tanker/tender"), the use of ten-codes, and the ICS forms. There are others. The point is that if an organization can use ICS as the tool it is meant to be, at least in spirit, they should feel confident in their decision to do so. If they have regional terminology (or other) differences they can work out through local and even regional disaster planning, they should not be undermined by a state or federal government (or a NIMS instructor). According to Jensen,

> The local level handles the average incident in the United States and interactions with the state and/or federal government during most incidents are minimal if any. If standardization of emergency management structures, processes, and terminology were lacking within the impacted jurisdiction, it may very well go unnoticed by the state and/or federal government. Moreover, any modifications made in implementing NIMS would not negatively influence any organization or jurisdiction outside of the local jurisdiction impacted by the incident (e.g., a neighboring county). (2010, pp. 98–99)

and,

> Large-scale disasters happen where the most effective and efficient response requires the quick integration and joint effort of organizations, jurisdictions, and levels of government to address the impacts and needs related to the incident. In these situations, the absence of an organizing mechanism such as NIMS would be noticed when organizations, jurisdictions, and levels of government attempt to separately address the impacts and needs related to the incident with their own, individualized emergency management system or no system at all, as appeared to be the case during Hurricane Katrina. (Neal & Webb, 2006, 2010, p. 110)

Thus, it is the contention of this author that it is more important that organizations are attempting to implement NIMS, and more importantly, ICS, in a way that they can use it in a way that prevents management failures seen in the past than it is to make sure that they are procedurally correct in every way.

C. POLICY OPTION B—CONCLUSION

Policy Option B—Emphasize the ethos of flexibility in ICS application, considering the concepts of individuality and locality in incident response frameworks.

Specific recommendations include:

1. Encourage ICS practitioners to consider the individuality and locality of incidents and their region when applying ICS.

2. ICS should be taught by truly experienced practitioners who can show students how ICS can be flexible, allow for improvisation, and adapt to meet the needs of a dynamic incident.

3. Reconsider who really needs ICS training, and focus on training the right responders, right.

> The organizational systems that respond to extreme events must be open systems that allow information to be gathered from and transmitted to the public and nongovernmental organizations in addition to standard governmental sources. They must promote distributed decision making and improvisation in the face of unexpected events or conditions. (Harrald, 2006, p. 270)

Since the adoption of NIMS as the system of choice for nationally significant incidents, the focus is on IMTs and full implementation of ICS, rather than a flexible implementation based on the conditions of the incident or disaster. This section recommends emphasizing flexibility in the implementation of ICS as a policy and during incident response. Incident management should address the individuality and locality of an incident in an effort to take advantage of the local resources and nuances that exist. This will contribute to the self-organizing aspects of the initial response and aid in the transition to the sustained response.

V. POLICY OPTION C—AGENCY DESIGNATIONS

A. RECOMMENDATION

Distinguish between jurisdictional and other types of agencies in ICS Training and Implementation. Focus on the role of the Liaison Officer and the EOC role in relieving and reducing the burden of "All-Hazard" inclusiveness on the UC.

B. DISCUSSION AND ANALYSIS

> *If we did not have such a thing as an airplane today, we would probably create something the size of N.A.S.A. to make one.* –H. Ross Perot

> *My experience with emergency managers, FEMA and NIMS leads me to believe that these people and systems are good at inclusiveness, building teams from people with diverse interests and backgrounds. [But] I have seen this 'management by committee' approach cripple response flexibility and efficiency.* –Chris Bellavita, 2010

Multi-agency and multi-jurisdiction incidents were a driving force behind the development and adoption of ICS and NIMS. Since 9/11, great strides have been made in the area of incident command. The current system in the U.S. is considered to be an all-hazard approach. There has been an effort toward agency inclusiveness and coordination in the UC. One area of UC that has become obscured with the recent all-hazard approach to ICS is the determination of which agencies will be represented in the UC. An example of this occurred during a recent disaster in Tulsa, OK. The initial efforts to include the vast array of agencies in the UC ended up in confusion. Eventually, one of the officials took control of the situation, sent everyone out of the room, and started over with the key players. Did this hurt some feelings? Were there some agency representatives excluded who wanted to know what was going on in the command post? Yes, but it was not necessary for them to be part of the UC. It was adequate for many organizations to interface with the Liaison Officer or have a representative in the EOC. Similar scenarios have occurred in command posts across the country. This chapter recommends courses of action based on existing NIMS and ICS definitions that will assist with this issue.

In the switch to All-Hazard ICS and NIMS, there has been an effort to be inclusive of all disciplines in the response arena. Not only are the traditional jurisdictional agencies being trained in NIMS and ICS, but also agencies that would not have been considered in the past. The emphasis has been on coordination and communication, as well as building partnerships and networks. These networks and partnerships are a vital part of NIMS and ICS. There can, however, be confusion about the purposes of the UC and an EOC (Jensen, 2008, p. 7, 9). One of the issues that command posts face is the concept of "who really needs to be here?" Conversely, an issue that comes up in EOCs is "we really need someone from (fill in the blank)."

Incidents that involve a single agency and a single jurisdiction are called single command incidents. The determination of who will be the IC on single command incidents is usually quite simple. Most organizations specify this in some form of written procedure. When incidents involve more than one agency or extend beyond one jurisdiction, responders use a UC. Instead of there being a person in charge of the incident, there is a small group of people who are decision-making representatives for each agency and jurisdiction involved in the incident (Federal Emergency Management Agency, 2008, pp. 3–13). The group appoints a spokesperson to carry forward the orders and decisions of the UC (NRT, pp. 13–14). The spokesperson is usually the representative from the agency with the greatest operational stake at that phase of the incident (NRT, pp. 13–14). Note that the representative from this organization is not the IC, but rather the spokesperson for the UC. The crux of the issue discussed here is the question "who really needs to be part of the unified command?"

There is not an easy answer to the question "Who is in charge?," or more accurately stated, "Who should be part of the unified command?" As one can imagine, during the dynamic initial stages of an incident determining these agencies can be very difficult. Much room is left for political agendas, power mongering, and the like. There will be agencies that insist they are in charge, and there will be other agencies that will skirt the issue and try to not be part of the UC. There will also be agencies who want to be part of the UC, but they have no jurisdiction or interest. Further, there will be supporting agencies arrive who may not necessarily be part of the command and control

element, but have resources and special abilities that can help solve the incident. Lastly, there may be agencies that jurisdictionally or strategically need to be part of the UC, but no one has thought to include them. (Lindell, 2006, p. 33)

When the fire service was the primary steward of ICS, the answer was often quite clear. The local fire service ran the incident in consultation with the other government organizations—or sometimes without (Cole 2000, pp. 209–210; Hannestad 2005, p. 23). Some areas had a true UC, and some did not. This system was the norm for many years from the early 1970s through the time when HSPD-5 and HSPD-8 were issued in 2003. With the current all-hazard approach to ICS, the pendulum has swung far to the other side. Instead of one agency running the response, the approach has been to include all possible government and nongovernment entities as part of the UC (ICMA, 2008, p. 39).

As a result of this emphasis, a host of new agencies are attending NIMS and ICS courses of all levels. Hence, they are carrying away the expectation that they are needed in the command post. There are two issues here. First, this adds to the load of the UC and to the confusion in the command post during the first portions of the incident. It has been the author's experience that superfluous agencies soon figure out the low actual need for their presence and their attendance at the command post wanes as time goes on. Obviously, this is not an effective way to filter out UC agencies, as it can alienate those agencies. A second issue occurs when misplaced expectations result in agency representatives attending unnecessary training. Time is wasted, and inaccurate expectations can be created. One of the expectations that can be construed is that all agencies are supposed to operate using ICS. This is just not true for all agencies. Many NGOs, VOADs, and private entities, for example, have their own response plans and operational methodologies (Drabek & McEntire, 2002, p. 215). They want to help, and they want to coordinate in any way possible, but, they do not need to try to fit ICS into their way of life. They have a need for awareness, not an innate knowledge.

When every possible organization has a representative in the UC, the group size can easily grow to a point where it is ineffective. In the United States, it would not be uncommon for the UC to approach twenty people or greater when one considers each aspect of local, tribal, and state law enforcement, emergency medical services, fire

service, public health, emergency management, and other agencies. Literature reveals various results on the recommendations for the effective number of committee or work group numbers. The graphic representation of the UC rotating triangle points to a group size of three. Obviously, this would not be inclusive enough for even the smallest of disasters. Interestingly enough NIMS and ICS define the span of control for one supervisor as three to seven (Federal Emergency Management Agency, 2008, pp. 2–26). Research into business literature reveals mixed numbers. A couple of examples indicate ranges from seven to sixteen and nine to fifteen for committees or work groups. These numbers could easily bog down the UC. Each new article yields a different range. One source in particular stood out. A document published by the National Response Team called the ICS/UC Technical Assistance Document indicates that the make-up of the UC should be variable based on the incident, but the number of representatives in the UC should be kept as small as possible (NRT, p. 12).

Several authors provide insight into the issues with coordination and stakeholders during a disaster response. Christopher Bellavita puts it most simply

> My DoD [colleagues] have acknowledged that [operations in the United States] are more complicated than overseas operations in some ways. Given our pluralistic governance, ICS allows for unified command (UC); emergencies don't respect geographic or regulatory jurisdiction. UC has particular requirements. Members of a UC must have jurisdiction, funding to contribute and authority to speak and decide for their agency. Failing one of those, you're [just] an agency representative. (2010)

It is not the intent of ICS to command every organization and emergent organization out there (Drabek & McEntire, 2002, p. 215). Rather, the intent is coordination with these entities. ICS is for the government to manage its own response (Drabek & McEntire, 2002, p. 215). Each agency, whether public or private, still maintains its own authority, responsibility, and accountability (NRF, 2008, p. 10; Drabek & McEntire, 2002, p. 215).

Drabek and McEntire acknowledge that one of the reasons coordination is difficult in a disaster is that some organizations do not understand how their agency fits in to the overall response effort. (2002, p. 207). Interviews conducted by Jensen indicated

that, “An additional issue noted by local EOC interviewees was that some people who were in the EOC and had no apparent formal role, or did not know what their role should be (2008, p. 9).” Lindell concurs, indicating that defining stakeholders is one of the problems inherent in complex emergency management (2006, p. 33). NIMS and ICS provide definitions that apply to stakeholder agencies. These definitions are incident specific and are based on the agency’s purpose at the incident. These definitions are one of the keys to managing the number of agencies that will be participating in the UC.

NIMS and ICS define agencies as:

> A division of government with a specific function offering a particular kind of assistance. In the ICS (ICS), agencies are defined either as jurisdictional (having statutory responsibility for incident management) or as assisting or cooperating (providing resources or other assistance). Governmental organizations are most often in charge of an incident, though in certain circumstances private sector organizations may be included. Additionally NGOs may be included to provide support. (Federal Emergency Management Agency, 2008, p. 135)

Agencies are further divided based on their jurisdiction or level of participation. The divisions are:

> Jurisdictional Agency: The agency having jurisdiction and responsibility for a specific geographical area, or a mandated function.
>
> Assisting Agency: An agency or organization providing personnel, services, or other resources to the agency with direct responsibility for incident management. See Supporting Agency.
>
> Cooperating Agency: An agency supplying assistance other than direct operational or support functions or resources to the incident management effort.
>
> Supporting Agency: An agency that provides support and/or resource assistance to another agency. See Assisting Agency. (Federal NIMS, 2008, pp. 135–149)

The ICS definition of agencies indicates that they are a division of government; however, it further explains itself to include private agencies and nongovernmental organizations in some situations. Fire, law enforcement, emergency medical services, and in some cases public health have traditionally been the jurisdictional agencies. Other

agencies, like public works and nongovernmental organizations have traditionally been assisting, cooperating, or supporting agencies. As seen in recent times, these traditional roles are disappearing. The "all-hazard" aspect of NIMS calls for a determination based on the needs of the incident.

The simple and pragmatic solution to this issue is that members who are delegated to be part of the UC by the agency administrator, or appointed as part of the UC by the IC, are part of the UC. The other agency representatives coordinate their agencies' efforts through the Liaison Officer or provide a representative in the EOC. A key determination is to then make a designation of what type of agency each is—early in the incident. This determination sets the tone for agencies' participation at the incident and helps to limit the number of agencies participating in the UC. In so much as possible, this should be part of continuing disaster planning, so that expectations are identified before the incident (Jensen, 2008, p. 2).

Chapter III, Policy Option A, discussed the need to recognize the "bottom-up" response that occurs with disasters and catastrophic incidents. In recognizing this aspect, as well recognizing the need for flexibility discussed in Chapter IV, Policy Option B, the discussion here lends itself to the topic of coordination between organizations. NIMS and ICS have the frameworks to assist with coordination. However, frameworks and definitions do not mean much, if they are not implemented. Disaster planning and drills at the local level can define these relationships, but disasters have shown that plans, while very necessary, typically change when the real thing happens (Koehler, Kress & Miller 2001, p. 295; Jensen, 2008, p. 3; Harrald, 2006, pp. 264–265). In the context of this discussion, despite anyone's best planning, the arrangement of the UC will likely have to be set when the disaster occurs. In situations like this, implementation of a framework often rests in the hands of a leader. This is most effective when the leader has positional power, as well as a structured environment such as an EOC (Jensen, 2008, p. 2, 8).

C. POLICY OPTION C—CONCLUSION

Policy Option C—Distinguish between jurisdictional and other types of agencies in ICS Training and Implementation. Focus on the role of the Liaison Officer and the EOC role in relieving and reducing the burden of "All-Hazard" inclusiveness on the UC.

Specific recommendations include:

1. Encourage the concept of regional UC planning. Regional planning and drills will allow agencies to continuously define their UC agencies.

2. Training: Emphasize concepts contained in this chapter in revisions to current training programs.

    a) Expand the UC module of the current ICS-300 course to emphasize the definitions and roles of the various types of agencies.

    b) Develop an awareness section in the IS-700[38] course. The NIMS Training Plan states, "Everyone involved in emergency management (to include emergency operation center personnel in support of the field), regardless of discipline or level of government, should take the NIMS baseline curriculum courses (Independent Study-700 and ICS-100 (2011, p. 7)."

3. Develop a special online training course for representatives from agencies that are normally cooperating or supporting agencies (who are not required to take IS-700) that familiarizes them with ICS and their expected roles during an incident.

The current system in the U.S. is considered to be an all-hazard approach, and there has been a tremendous effort toward agency inclusiveness and coordination in the UC. One area of UC that has become obscured with the recent all-hazard approach to ICS is the determination of which agencies will be represented in the UC. Whereas in the past, fire departments were almost exclusively put in charge of disasters and catastrophic incidents, now the pendulum has swung far to the side of inclusiveness in UC. This is significant because it directly affects the implementation of a UC or an EOC, and hence affects the success of ICS. Simply put, our light, simple, and agile commands are

[38] IS-700: National Incident Management System (NIMS), An Introduction.

becoming committees and bureaucracies. There must be a change in the current practice of making all agencies equal partners in the command of disasters. Incidents are real, and they are dynamic. The number of key partners and decision makers needs to be limited to those agencies with jurisdictional authority. Cooperating agencies are vital to the response to disasters and catastrophic incidents; however, they should implement their agency oriented response plans while working through the Liaison Officer or EOC.

VI. ANALYSIS

During its forty-year history, ICS has become the prominent model for managing incident response in the United States (Cole, 2000, pp. 207–210; Hannestad, 2005, p. 21). In the mid-1980s and throughout the 1990s, ICS spread through the fire service primarily as a grass roots effort. After the events of 9/11, President George W. Bush issued Homeland Security Presidential Directive 5 (HSPD-5), which codified ICS as part of a new national incident management system (NIMS, 2008). Homeland Security Presidential Directive-5 incorporated a system with a successful history as a best practice for the country (NIMS, 2008). Best, or smart, practices are practices or from another area that are used in another (Bardach, 2009, Loc.1227/1891). Despite the previous successes of ICS, there has not been universal acceptance of the system and its overarching policy, NIMS (Jensen, 2010, p. 13, 18). This research examines the response aspect of disasters and other catastrophic incidents and considers ICS as a United States policy. The method of Policy Analysis is used to recommended solutions that will address issues that have hampered the implementation of ICS as part of the National Incident Management System. This chapter will examine each recommendation and explain trade-offs between the projected outcomes for each policy option.

A. CRITERIA FOR SUCCESS/FAILURE

1. Effectiveness

Key among the criteria for any recommendation is effectiveness. Whether or not the change will make a difference and achieve the stated goal is the most important factor. There has significant controversy on the current effectiveness of NIMS. ICS is considered a smart practice, not a perfect, or even a best practice. The fact that the Homeland Security enterprise is unable to truly pinpoint the effectiveness of NIMS and ICS makes it difficult to pinpoint the effect that these policy options will have on future incident management efforts.

2. End User Acceptability

With the issuance of Homeland Security Presidential Directive-5, NIMS and ICS took the force of law. NIMS implementation was tied to grant funding and disaster reimbursement. In the sense of grant funding for equipment and training, implementation was a potentially funded mandate. However, the mandate was included as part of a larger goal, preparedness for disasters and catastrophic incidents. Local jurisdictions, who in many cases were struggling to make ends meet for day-to-day needs, became subject to an unproven policy. Many jurisdictions signed on the line to verify system implementation, but in reality, they implemented only the portions of the system that applied to them. Despite the enforcement authority the federal government may have in such situations, the end result in a wide array of jurisdictions is that NIMS and ICS will not be implemented as written. An oft heard saying in the homeland security enterprise is that disasters start local and end local. Every citizen is part of a local jurisdiction first. Citizens empower elected officials and bureaucrats to protect them from harm (U.S. Const., Preamble). Their first line of defense is their emergency response community. With this in mind, it is of the utmost importance that mandates aimed at controlling the activities of local responders are acceptable to those on who the mandates are imposed.

3. Complexity

In the history of the ICS, it is the author's contention that NIMS/All-Hazard ICS was a normal accident—a hiccup in the history of an otherwise useful and smart system. The resultant policy has unknown effects on the effectiveness of system. By taking ICS, an arguably smart practice, and spreading it across the enterprise of homeland security, incident management presumably became more efficient. The result was a seemingly simple system with tremendous underlying complexities. In the context of this discussion, NIMS is an outcropping of a series of events that define a pattern in the realm of homeland security. One could view this as a normal accident, or a predictable and significant occurrence, in the life of ICS. With or without the policy of NIMS, the smart practice of ICS can stand on its own merits. The concepts within ICS are simplistic, but when they become part of the NIMS generalization, they become a precursor to unorder.

Hence, it is the goal of this thesis that any changes to NIMS and ICS should be based on reducing complexity. According to the findings of Bak et al. and Lewis, this requires reducing connectedness and increasing redundancy.

4. Political Acceptability

The concepts NIMS and ICS are entrenched in many administrative level bureaucratic personnel—the personnel who will have to be convinced to make changes. It is quite possible, that in many cases, NIMS and ICS are seen as near flawless policy. Further, many may have the attitude that the state and local jurisdictions must abide by NIMS without question. Acceptability to those who have a vested ownership in NIMS, have to rewrite local policies, and the NIC may not be so great. These recommendations may well fly in the face of the standardization that some would wish to achieve through NIMS.

5. Cost

In any policy effort, cost is a consideration. The printing and distribution of materials would be of some cost, but not substantial when considering it will affect an entire nation. Cost in this case is relative to the original cost of NIMS Implementation. In the fiscal years 2002 through 2011, the federal government appropriated over $37 billion to the Department of Homeland Security's (DHS) preparedness grant programs (GAO, 2012, p. 1). These programs were intended to "enhance the capabilities of state and local governments to prevent, protect against, respond to, and recover from terrorist attacks (GAO, 2012, p. 1). With this in mind, any efforts to implement revisions to ensure the success of an existing program would pale in comparison.

B. COMPARISON OF POLICY OPTIONS

Table 1 illustrates the expected success return for each of the recommendations listed above.

Table 1. Success Prediction

Option	Effectiveness	End User Acceptability	Complexity	Political Acceptability	Relative Ease of Implementation	Cost
A	High	High	Low	Low	Medium	Low
B	High	High	Low	Low	Medium	Low
C	Medium	Medium	Medium	Low	Low	Low

C. OUTCOMES OF POLICY OPTIONS

1. Policy Option A—Acknowledging the Bottom-Up Response When Implementing ICS?

Policy Option A—Acknowledge the bottom-up response that occurs when implementing ICS at major incidents: Modify ICS and NIMS training and implementation to change the ethos of ICS from a top-down system to a bottom-up system during the initial stages of a major incident. Emphasize the importance of the phase of major incidents that begins with its occurrence and ends with the beginning of the first operational period.

This recommendation would result in greater support to initial responders of catastrophic events. Supporting the initial response is the bridge to sense-making in the chaos of a disaster. The first responders are seeing the needs and taking care of immediate priorities. ICS is intended to orchestrate the initial response while, in a parallel fashion, conducting damage assessments and planning for the first and subsequent operational periods. Changing to a bottom-up mentality in the initial stages would allow for the natural, self-organizing nature of disasters and catastrophic incidents to assist rather than hinder the IC/UC. The potential trade-off is the “loss of control” that may be felt by some. This recommendation, however, is not supporting a free-for-all. Rather, it is suggesting supporting the initial efforts of responders while at the same time, layering in a command structure for the sustained response.

2. Policy Option B—Flexibility in ICS: Emphasize Individuality and Locality

Policy Option B—Emphasize the ethos of flexibility in ICS application, considering the concepts of individuality and locality in incident response frameworks.

A revision to the ICS educational materials emphasizing flexibility would be a major shift. The key end result would be a shift from militaristic implementation and to focusing on the needs of the incident and responders. This recommendation does not suggest a wholesale disregard for the policies and standardization of ICS. Rather, it suggests that local and regional jurisdictions be encouraged to emphasize the portions of ICS that are most pertinent to their operations. This should be done through planning and agreement. Further, this recommendation suggests that when implementing ICS for an incident, the main consideration must be the needs of the incident not creating the perfect ICS chart.

3. Policy Option C—Agency Designations

Policy Option C—Distinguish between jurisdictional and other types of agencies in ICS Training and Implementation. Focus on the role of the Liaison Officer and the EOC role in relieving and reducing the burden of “All-Hazard” inclusiveness on the UC.

First and foremost, this recommendation is unintentionally likely to make some people feel left out; however, we have been giving people the wrong impression. This impression is that all of the players will be equal when they arrive at the command post. In the midst of a disaster, key players in a UC will be those who have the resources and expertise to save lives and protect property. As the focus of the incident shifts, the construct of the UC will change. Many organizations have their own organizational plans and will interface with the Liaison Officer, or provide an agency representative in the EOC to ensure coordination with the UC. The intent is not to dis-include any organizations that are pertinent to the UC, rather it is to manage the ability of the UC to be an agile and adaptable organization—not a bureaucracy or committee.

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VII. CONCLUSION

In light of recent successes and failures in incident management, this research explores where the management failures lie between what obviously works and what does not. The importance of the research is measured in human life. If lives can be saved through identifying a management difference, then changes can be made to improve response. Finding that important seam is the ultimate goal of both this research and response leaders across the country. The research works at the strategic policy level to identify how systemic, rather than tactical alterations, can be made across the system in an effort to improve overall management. In particular, it considers the response phase of disasters and catastrophic incidents and asks, what can be done to help responders use the existing framework? What positive change can be made in the national ethos with regard to disaster and catastrophic incident management? And finally, what can be done to improve the acceptance and utility of known and proven management tools?

Incidents at the national level are closely scrutinized, and mistakes and errors will be exposed. Where those management failures are linked to losses of life, demands will be made against both the failed managers and agencies, by other levels of government, citizen groups or even the courts. While some management failures are going to happen, those that can be changed through better policy should be critically considered and changed. Management is not a new subject and managing catastrophic incidents is a field of study that can be known through analysis.

ICS refers to itself as a “top down” system of management where objectives are orchestrated by a traditional, scalar command structure. This thesis has shown that incident success is more likely when command personnel acknowledge the “bottom-up,” or self-organizing system that naturally occurs during the initial stages. Once commanders acknowledge this portion of the response, they can take it into account as part of their planning for the sustained response. It is the IC/UC’s job to support these efforts while developing an action plan for a sustained response. The first recommendation is to acknowledge the bottom-up response that occurs when

implementing ICS at major incidents and to modify ICS and NIMS training and implementation to change the ethos of ICS from a top-down system to a bottom-up system during the initial stages of a major incident. Emphasis should be placed on the importance of the phase of major incidents that begins with its occurrence and ends with the beginning of the first operational period

This thesis examined the combined concepts of individuality and locality, as they apply to flexibility in ICS. It suggests there is a disconnect in the intent of incident management as a whole, and the current ethos and teachings surrounding ICS and NIMS. The second policy option, therefore, is to emphasize the ethos of flexibility in ICS application, considering the concepts of individuality and locality in incident response frameworks.

Further, this document also examines the concept of inclusiveness when establishing a UC. One of the weaknesses of ICS in years past was that it was construed as a fire service system. With the implementation of NIMS and All-Hazard ICS, the pendulum has swung far to the side of inclusiveness in UC. The third policy option suggests distinguishing between jurisdictional and other types of agencies in ICS training and implementation. Focus on the role of the Liaison Officer and the EOC role in relieving and reducing the burden of all-hazard inclusiveness on the UC.

Much debate surrounds the efficacy of ICS and NIMS to handle a comprehensive range of incidents. This thesis will not only contribute concrete solutions to improve the use of ICS, but also add to the academic literature on the topic. This research is an effort to apply appropriate analysis to three aspects of a current policy, NIMS, in an attempt to reduce complexity and increase understanding. The thesis uses a policy analysis to develop strategic recommendations aimed at increasing 1) the utility of ICS to the homeland security enterprise, and 2) its palatability to local jurisdictions. The goal is to prevent the consequences of management failures that can occur from disasters and catastrophic incidents. The recommendations in this thesis are not mutually exclusive. The ideal situation would be to implement all of the recommendations set forth in the thesis. However, any of them will have positive impact. The combined results of these

actions would greatly improve implementation and bring ICS practitioners into line with the incidents, disasters, and catastrophes which they will be managing.

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APPENDIX A. PARTIAL LIST OF ICS/NIMS COURSES

ICS-100: Introduction to the Incident Command System

ICS-200: ICS for Single Resources and Initial Action Incidents

ICS-300: Intermediate ICS for Expanding Incidents

ICS-400: Advanced ICS

IS-700: National Incident Management System, An Introduction

IS-701: NIMS Multiagency Coordination System (MACS)

IS-702: NIMS Publication Information Systems

IS-703: NIMS Resource Management

IS-704: NIMS Communication and Information Management

IS-706: NIMS Intrastate Mutual Aid – An Introduction

IS-800: National Response Framework, An Introduction

E/L 950: All-Hazards Position Specific Incident Commander

E/L 952: All-Hazards Position Specific Public Information Officer

E/L 954: All-Hazards Position Specific Safety Officer

E/L 956: All-Hazards Position Specific Liaison Officer

E/L 958: All-Hazards Position Specific Operations Section Chief

E/L 960: All-Hazards Position Specific Division/Group Supervisor

E/L 962: All-Hazards Position Specific Planning Section Chief

E/L 964: All-Hazards Position Specific Situation Unit Leader

E/L 965: All-Hazards Position Specific Resources Unit Leader

E/L 967: All-Hazards Position Specific Logistics Section Chief

E/L 969: All-Hazards Position Specific Communications Unit Leader

E/L 970: All-Hazards Position Specific Supply Unit Leader

E/L 971: All-Hazards Position Specific Facilities Unit Leader

E/L 973: All-Hazards Position Specific Finance/Admin. Section Chief

E/L 975: All-Hazards Position Specific Finance/Admin. Unit Leader Course

(Source: NIMS Training Program, 2011)

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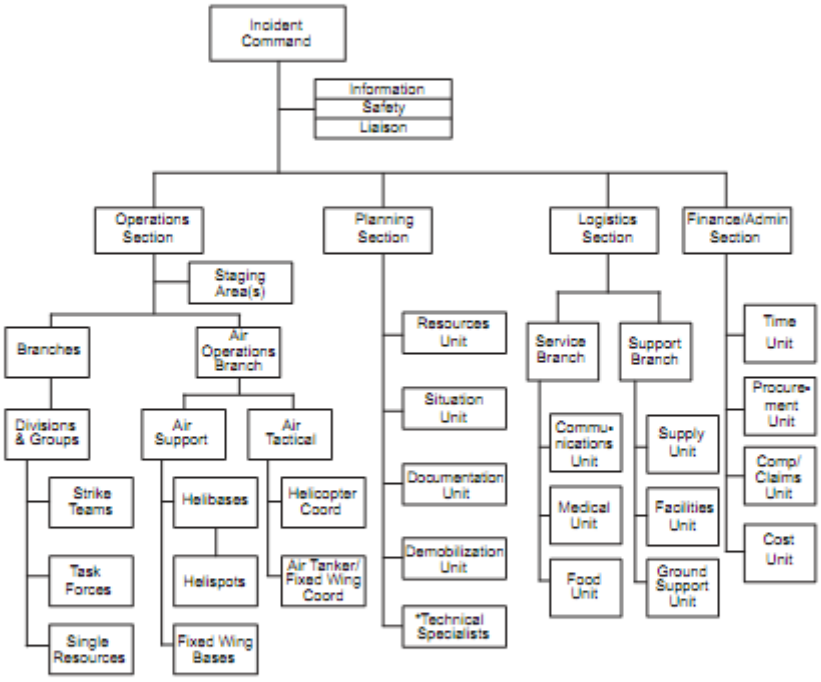
APPENDIX B. THE MODEL ICS SYSTEM

INCIDENT COMMAND SYSTEM
ORGANIZATION CHART



* May be assigned wherever their services are required.

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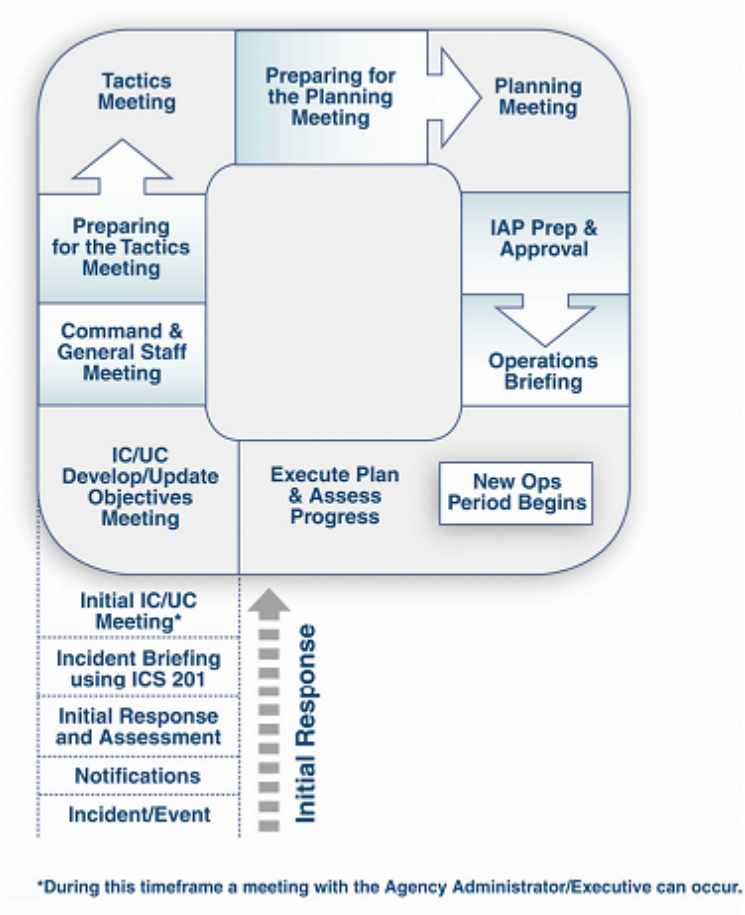
APPENDIX C. THE "PLANNING P"

Figure B-9. Operational Period Planning Cycle



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